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Note by the Secretary-General

The Secretary-General has the honour to transmit to the members of the General Assembly the report of the Joint Inspection Unit entitled "Managing information in the United Nations system organizations: management information systems" (JIU/REP/2002/9).

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MANAGING INFORMATION IN THE UNITED NATIONS SYSTEM ORGANIZATIONS:

MANAGEMENT INFORMATION SYSTEMS

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ACRONYMS

ACC	Administrative Committee on Coordination (now CEB)
CEB	United Nations System Chief Executives Board for Coordination (formerly ACC)
CIO	Chief Information Officer
ERP	Enterprise Resource Planning
FAO	Food and Agriculture Organization of the United Nations
HLCM	High-Level Committee on Management
IAEA	International Atomic Energy Agency
ICAO	International Civil Aviation Organization
ICC	International Computing Centre
ICT	Information and communication technology
ILO	International Labour Organization
IMIS	Integrated Management Information System
IMO	International Maritime Organization
ISCC	Information Systems Coordination Committee
IT	Information technology
ITU	International Telecommunication Union
JIU	Joint Inspection Unit
MI	Management information
OECD	Organisation for Economic Co-operation and Development
OIOS	Office of Internal Oversight Services
UNDCP	United Nations Drug Control Programme
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNHCR	Office of the United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
UNOV	United Nations Office at Vienna
UNRWA	United Nations Relief and Works Agency for Palestine Refugees in the Near East
UPU	Universal Postal Union
WFP	World Food Programme
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WMO	World Meteorological Organization

EXECUTIVE SUMMARY

Background

It has become increasingly important for the organizations in the United Nations system to take advantage of the rapidly evolving information and communication technologies (ICT) for improved management, as the basis for performing their mandates efficiently and effectively. The United Nations system organizations are estimated to have already spent a significant amount of resources (close to US$ 1 billion) over the last decade in introducing computerized management information (MI) systems (including "legacy" systems) designed to facilitate improved management in human resources, finance and administrative areas.

Objectives

(1) To review the experiences on MI systems in the United Nations system organizations and draw lessons therefrom; and

(2) To provide a set of guidelines aiming at (*a*) strengthening information management and (*b*) improving design and implementation of MI systems as effective tools for better management in the United Nations system organizations.

Main findings/conclusions and recommendations

A. Information is a resource that needs to be managed effectively, like financial and human resources. Managing information resources effectively is not only a major organizational challenge but also provides an opportunity for enhancing efficiency, thus strengthening the United Nations system organizations over time. Although there have recently been some positive developments in related matters, not all executive management in the United Nations system organizations and legislative organs has fully recognized the importance of information management, the critical role of which is to ensure that key decision makers have real-time information when needed for making a proper judgement and/or a decision.

B. The first step towards effective management of information resources is to develop an organization-wide information management strategy, but many organizations introduced MI systems without having such a strategy. The information management strategy is distinct from an information technology strategy in the sense that information technology (IT) or ICT are tools for an effective information management process.

C. MI systems are extensively used in the United Nations system organizations for specific managerial areas; financial and human resources management, payroll, procurement, travel, conference management, contract management, document management. The degree of development and use of such systems varies from one organization to another: some of them have relatively sophisticated MI systems (combining programme/substantive areas into the systems), whereas most of the others use those systems for administrative functions only. In any event, many organizations developed various systems without due regard to their integration into an organization-wide system designed to facilitate improved management.

D. A number of organizations in the United Nations system are developing or are interested in introducing an integrated organization-wide resource management system called the Enterprise Resource Planning (ERP) system. This solution would have merits including support for results-based management. However, many United Nations system organizations that are developing an ERP system have failed to meet the necessary and sufficient prior conditions required for cost-effective implementation of such a system. These conditions include: (*a*) streamlining existing work processes; (*b*) putting a management structure in place and establishing an operational plan; (*c*) planning for integration of various MI systems in a streamlined work process; (*d*) identification of requirements and in-depth review of functionality that ERP applications provide; (*e*) cost-benefit analysis of various options, such as in-house development of a system and purchase of an "off-the-shelf" (commercial) application package and (*f*) provision of adequate training. All of these conditions should have been met prior to introducing/developing such a system or taking substantive decisions on any related matter.

E. In view of the fact that implementation of projects for MI systems, in particular ERP systems, is a resource-intensive undertaking, effective project management is critical to successful development and introduction of such systems.

F. No commonly agreed way of computing costs of MI system projects has been established in the United Nations system. A number of organizations are not even in a position to provide financial implications, on solid ground, of their MI system projects. This prevents the Member States not only from having a transparent overall picture in terms of their financial burden for MI system projects, but also from having a comparative cost analysis across the organizations in the United Nations system.

G. Inter-agency cooperation/coordination on MI systems is not an easy task, particularly because organizations tend to stress differences (in functional requirements, regulatory frameworks, financial ability, etc.) rather than commonality. In view, however, of the magnitude of resources involved in developing MI systems, the organizations in the United Nations system, under the leadership of the United Nations Secretary-General as the Chairman of the United Nations System Chief Executives Board for Coordination (CEB), should make utmost efforts to enhance cooperation in order to avoid/minimize duplicated efforts and investments. Member States are expected to play a vital role in this respect by sending a clear signal/message, through proper legislative action, to the secretariats of the organizations in the United Nations system.

RECOMMENDATION 1

Legislative organs should request the Executive Heads of the respective United Nations system organizations that have not yet done so to prepare and submit, for review and appropriate action, a comprehensive strategy for information management/MI systems (including indication of required resources for development and implementation), with due regard to a full introduction of the results-based management approach (paras. 12, 14, 15, 17, 23, 24, 27, 28, 30, 31).

RECOMMENDATION 2

Legislative organs should request the Executive Heads of the respective United Nations system organizations that have not yet done so to take the following measures (paras. 17, 18)**:**

(1) Designate/appoint a senior official to serve as Chief Information Officer (CIO) who would have the functions indicated in (*a*), (*b*), (*c*), (*d*) and (*e*) below. Depending upon organization-specific circumstances, however, the CIO functions could be performed by an appropriate unit or, in the case of small organizations that cannot afford a CIO, by a senior official with organization-wide coordinating responsibilities as well as some IT knowledge;

(*a*) Keep the organization's information management strategy and IT in alignment with its corporate business plan;

(*b*) Ensure that information-management policies and standards are strictly followed and the IT infrastructure is well managed;

(*c*) Ensure that key decision makers on both substantive and administrative matters have proper and timely information;

(*d*) Facilitate developing and maintaining a culture for improving information management in the organization by exploring new technological possibilities as required; and

(*e*) Seek compatibility, to the extent possible, in MI systems-related policies and practices with other organizations in the United Nations system, and represent the organization in inter-agency meetings and consultations (see recommendation 5 (1)).

(2) In the context of (1) above, the CIO or the official (including the chief of "an appropriate unit") who has CIO functions should report directly to the Executive Head or, if so warranted in view of the size of an organization, to the Deputy Executive Head in charge of programmes.

RECOMMENDATION 3

Legislative organs should request the Executive Heads:

(1) To take, as far as they have not yet done so, the following steps prior to introducing and/or developing a new MI system (paras. 16, 22, 24, 26, 28-31, 34, 37, 40, 41)**:**

(*a*) Streamline existing work processes, procedures and practices in such a way as to support results-based management, and identify functional requirements to meet their mission-critical objectives on the basis of streamlined work processes/procedures/practices, with due consideration of a possible outsourcing of support functions such as payroll, accounting etc. (see recommendation 5(c)).

(*b*) Establish a plan for integrating various management systems (like financial and human resources management systems), with a view to introducing/developing an integrated and organization-wide management information system such as ERP.

(*c*) Carry out an in-depth review of functionality that ERP applications can provide, and make a cost-benefit analysis of various options available to each organization (such as developing in-house, sharing services with other United Nations entities, buying a commercial package, including the possibility of changing procedures to adapt to the best industry practices rather than "customizing" commercial products to adapt to the requirements of the organizations), bearing in mind the need, to the extent possible, for inter-agency cooperation and coordination (see recommendation 5).

(2) To report, for review and appropriate action, on the measures taken on the above, and, on a regular basis, on the progress made in MI system project implementation.

RECOMMENDATION 4

With a view to enhancing transparency and comparability of financial implications of MI system projects, the United Nations Secretary-General, in his capacity as Chairman of CEB, should request the CEB/High-Level Committee on Management (HLCM) to establish a standardized cost classification, to be used for cost estimates of MI system projects implemented by the United Nations system organizations and to report thereon to the competent legislative organs of these organizations through the Executive Heads of the respective organizations (paras. 42-44).

RECOMMENDATION 5

In order to enhance cooperation and coordination in respect of designing and implementing MI systems in the United Nations system organizations by avoiding duplicated efforts and investments, the United Nations Secretary-General, in his capacity as Chairman of CEB, should request the CEB/HLCM (paras. 4, 40, 41, 45-47)**:**

(1) To intensify consultations on this matter, by taking into account the following options:

(*a*) Joint designing and/or joint implementation of MI systems among organizations having commonality in the nature of their mandates[1] and/or similar requirements with respect to support functions (e.g. payroll processing, accounting, human resources management, general services);

(*b*) Sharing services with other organizations in the United Nations system;

(*c*) Outsourcing common support functions to other organizations;

(*d*) Application hosting for other United Nations system organizations by those which have developed the ERP system; and/or

(*e*) Possible enhanced use of the International Computing Centre (ICC).

(2) To report thereon to the competent legislative organs, for review and appropriate action, through the Executive Heads of the respective organizations.

[1] Based on discussions with officials in a number of organizations in the United Nations system, it is considered that the United Nations system organizations could broadly be grouped into, for instance: the United Nations itself, the United Nations funds and programmes, and the specialized agencies, which could also be classified into a number of sub-groups such as field or headquarters-oriented, big or small organizations.

I. INTRODUCTION

1. Taking advantage of rapidly evolving information and communication technologies (ICT) has become increasingly important for improved management in the United Nations system organizations to perform their mandates in a more efficient and effective way. While these organizations generally recognize the role of ICT in a reform process aimed at improving management, the need for a strategic and comprehensive approach to integrate ICT for management purposes has largely been neglected.

2. Only recently has the importance of technological and managerial aspects of information seemed to have been recognized. Following its 1996 joint statement on reform and strengthening of the United Nations system, the Administrative Committee on Coordination (ACC) in April 1997 adopted a comprehensive statement on universal access to basic communications and information services. This statement addressed in detail the urgent need for a strategic and more systematic approach to ICT, based on strengthened United Nations system-wide collaboration. The critical role that information and its management play in the performance of mandates was reconfirmed by the United Nations Secretary-General during the Millennium Summit.[2] In this context, the High-Level Committee on Management (HLCM) of the United Nations System Chief Executives Board for coordination (CEB) concluded, at its meeting in September 2001, that capitalizing on technology was one of its priority work themes.

3. Many United Nations system organizations have been developing and implementing management information (MI) systems. It is generally conceived that cost-effective design and implementation of such systems is not an easy task, one which requires specific technical and information-management skills, leadership and vision, as well as effective system-wide co-operation, not to mention the financial implications of such major undertakings.

4. In spite of considerable financial investment in MI systems, which is estimated to be close to US$ 1 billion over the last ten years for the whole United Nations system (see paragraph 43), most of the United Nations system organizations have had a modest success in their implementation. The usefulness of such systems is limited generally to administration, as an administrative-processing tool, and they are not functioning as full-fledged ERP systems to be used for strategic management and decision-making. Furthermore, lack of efficient inter-agency coordination and collaboration led to system design and development by individual organizations without effectively sharing experiences and knowledge with other organizations, resulting in duplication of efforts and unnecessary investment.[3] In the United Nations system as a whole, individual organizations repeatedly incurred a considerable amount of expenditures for the same purposes, such as feasibility studies, analysis of requirements, and negotiation and award of expensive support contracts with external suppliers of services and software products. In view of the above, it is of critical importance to both the Member States and the secretariats of the United Nations system organizations to come up with effective, efficient and economically viable solutions for MI systems that would facilitate improved management and strategic decision-making. Oversight bodies/mechanisms in the United Nations system could also play an important role in this context.

[2] "The digital revolution has unleashed an unprecedented wave of technological change. Used responsibly, it can greatly improve our chances of defeating poverty and better meeting our other priority objectives. If this is to happen, we in the United Nations need to embrace the new technologies more wholeheartedly than we have in the past." (A/54/2000 of 27 March 2000)

[3] For example, to cope with the system for calculating entitlements and benefits, each organization has developed/customized its own human resources (HR) processing packages. In this respect, however, a common payroll system would have been possible for most of the United Nations system organizations from a technical and functional point of view.

Scope of the report

5. This report focuses on the experiences of United Nations system organizations in respect of development and implementation of MI systems,[4] and reviews key managerial and operational issues relating to them, such as strategy, leadership, governance, functionality, outsourcing, costs, as well as inter-agency cooperation and coordination. In this context, the intent of the report is to stress the importance of making the best use of available information for effective resource management and decision-making with the support of adequate MI systems. To maintain the focus, the issue of knowledge management in terms of management of programmatic data warehouse systems is not discussed in this report.

Methodology

6. The methodology used for the report includes comprehensive desk review of relevant documents of United Nations system organizations, as well as those of other organizations outside the United Nations system. Relevant reports of national oversight bodies on MI systems were also taken into account for benchmarking purposes. Furthermore, a questionnaire was sent out to 20 United Nations system organizations, and interviews were carried out with knowledgeable senior officials responsible for information technology, budgeting, human resources management and administrative support services in Geneva, New York, Rome and Vienna.

Table A presents an overview of MI systems within the United Nations system organizations, prepared on the basis of responses to the questionnaire, interviews and/or research.

The Joint Inspection Unit (JIU) expresses its gratitude to all United Nations system organizations and bodies that have contributed to this report.

[4] As defined in paragraphs 19-23, the term "systems" in this report refers to the software package as well as to the operational process; hardware issues are not specifically addressed in view of the scope of this report, although, admittedly, there could be room for cost savings through the rationalization of hardware platforms.

Table A
Management information (MI) systems overview*

Organization	Functional area: Financial management: General acc.	Financial management: Budget	Financial management: Project mngt.	Material and contracts management: Assets mngt.	Material and contracts management: Purchase	Material and contracts management: Materials, logistics	Human resources management: Payroll	Human resources management: HR admin	Human resources management: HR entitlement	Strategy for IM prepared	MI system as a mngt. tool	Cost-benefit analysis carried out	Operational processes reviewed	Cost (in millions of US$)	Interagency coordination	Packages/ systems	Comments/ reference
United Nations (IMIS)	O	S	S		O		O	O	O	technology	no	no	partly	78.6	yes	IMIS	1,2
UNDCP	"IMIS"	O	P		"IMIS"		"IMIS"	"IMIS"	"IMIS"	no	yes	no	no	1.8	yes	IMIS/PS	5
UNDP	IMIS(30%) S(70%)	S	S		?		IMIS	IMIS	IMIS	yes	no	n.a.	n.r.	47	yes	IMIS/own development,PS	3
UNFPA										?	partly	no	n.r.	n.a.	n.a	"PS"	
UNHCR	"ICC"				"ICC"		"ICC"	"ICC"	"ICC"	n.r.	n.r.	n.r.	n.r.	30-40	n.r.	"PS"	4,7
UNICEF	O(HQ) S(field)	O(HQ) S (field)	S	O(HQ) S (field)	O(HQ) S (field)	O(HQ) S (field)	IMIS	IMIS	IMIS/P	yes	yes	partly	yes	n.r.	yes	SAP/IMIS/proms	
UNRWA	O	O		S/P	S/P	S/P	O	O	O	partly	no	yes	partly	4.3	no	RAMCO	
WFP	O	O	O		O	O	O	O	O	yes	yes	yes	yes	37.0	yes	SAP	
ILO	P/S	P/S			P/S		P/S	P/S	P/S	yes	yes	yes	yes	25.0	no	"ORACLE"	6
FAO	O	O/S	S		O	O	S/P	S/P	S/P	yes	yes	yes	yes, BRP	34.0	no	ORACLE	
UNESCO	O	O/S	O	P	O	P	P	P	P	yes	yes	partly	yes	16.0	partly	SAP	
ICAO	S	S			S		S	S	S	technology	partly	n.a.	no	1.5-2	partly	Own development	
WHO	S	S	S	S	S	S	S	S	S	partly	n.a.	preliminary	n.a.	n.r.	n.a.	Own development	
UPU										?	partly	?	n.a.	n.r.	n.r.		
ITU	O	O	S	S	O	O	S/P	S/P	S/P	no	partly	not formal	yes	5.9	yes	SAP	
WMO	O	O			P		S	S		no	yes	yes	partly	0.8	yes	ORACLE	
IMO										n.r.	n.r.	n.r.	n.r.	n.r.	n.r.		
WIPO	P	P		S	S		S	S	S	partly	partly	yes	yes	6.3	yes	selection under way	
UNIDO	O(HQ)					P	P/ "IAEA"	P/ "IAEA"	P/ "IAEA"	?	no	n.r.	partly	1.4	n.r.	Agresso/own development	
IAEA	S	S	S	S	S	S	S	S	S	yes	yes	yes	yes	2	no	not ERP	

* Based on responses to questionnaires, interviews and/or research.

O	ERP modules (operational)
P	ERP modules (planned)
S	Separate systems/own development
" "	Operation performed by other agency
n.a.	Not applicable (according to the reply)
n.r.	No response
"PS"	PeopleSoft solution (planned)
"Oracle"	Oracle solution (planned)

Notes

1	While the United Nations in the reply indicated that document A/55/780 is an IM strategy, the inspectors are of the opinion that it is more an IT strategy
2	In the 13th IMIS status report (A/56/602), it was stated that the IMIS project did not benefit from business re-engineering and process streamlining up front
3	UNDP has recently (May 2002) chosen PeopleSoft for its ERP solution for HQ and all field operations
4	UNHCR has acquired the PeopleSoft software suite according to the Board of Auditors (implementation on hold - stage unknown)
5	UNDCP indicated that only direct external costs are included in the cost for the ERP solution (i.e. excluding staffing and other internal expenses)
6	ILO has informed through the ICT managers group it has chosen ORACLE as its future ERP system
7	Field offices have their own systems

II. MANAGEMENT INFORMATION SYSTEMS

A. Information management

Information as a resource

7. Information is a resource that needs to be managed effectively, like financial and human resources. Effective management of information resources is a basic requirement for good management of the United Nations system organizations.

8. With the increased competition for financial resources in the United Nations system, executive management of its organizations is looking towards ICT tools and solutions for contributing to achieve management objectives, such as increased efficiency, cost reduction, and strengthened communication with Member States.

9. Accountability to the Member States for the use of resources requires not only integration of administrative and financial information in MI systems, but also transparent reporting on performance to the Member States, which presupposes that management of information is effectively aimed at executing mandates and programmes approved by the legislative organs.

10. The complexity of mandates and related programmatic operations entrusted to the organizations in the United Nations system makes it difficult for them to function properly without the help of adequate ICT and MI systems. MI systems backed by appropriate ICT would facilitate the organizations in providing better services to the Member States and in better managing the resources that the Member States make available.

11. In this context, the crux of the matter is to recognize, as referred to above (para. 7), that information is a mission-critical resource. Based on this understanding, identification is needed of (*a*) information required; and (*b*) MI systems required for proper management of such mission-critical resources.

12. While well-designed MI systems would be able to provide key decision makers with real-time information that they require for making a proper judgement and/or a decision, the importance of information management is, in general, not fully recognized. The first step to achieve effective management of information resources is to set up an appropriate IT governance framework with an information management strategy.[5]

IT governance

13. Strategic IT governance is instrumental for achieving organizational mandates in view of the close relationship between the management of information and the performance of the mandates. Legislative organs must exercise strong leadership and provide the Secretariat with clear policy guidance on information management, defining mission-critical information requirements that affect the organizational performance, as well as the way ICT should be used for effective information management. Implementing such a strategic vision will also require a strong commitment by executive management of the Secretariat for bringing about necessary changes in management culture that would involve proper risk assessment and re-engineering of business processes.

14. Generally speaking, legislative organs and executive management of United Nations system organizations have been paying limited attention to the strategic aspect of information management, which is demonstrated by the fact that a small number of organizations adopted comprehensive information management strategies. The information-management strategy is distinct from an ICT strategy. The ICT strategy should address technological requirements so that ICT works as an effective tool for an information-management process; the information-management strategy should focus on identifying mission-critical information as well as system(s) required for effective information management.

15. The lack of comprehensive information management strategies often resulted in unforeseen additional resource requirements for, and/or an unforeseen delay in, IT project implementation. This has prompted reactions from legislative organs, ranging from requesting

[5] Such IT governance frameworks with information management strategies have been set up by a number of organizations including FAO, UNDP, UNICEF and WFP.

auditing and/or additional reporting to freezing of resources. In several cases, MI systems that had been introduced after considerable investment did not meet initial expectations, which is often attributable to a lack of strategic perspective on MI. Furthermore, in many organizations, planning, budgeting and performance measurement (monitoring and evaluation) are still independent components, and not fully integrated with a seamless planning, budgeting and performance-measurement process. As a result, MI systems are not generally seen as a useful tool in support of management and for the purpose of assessing/monitoring an organization's performance by the legislative organs.

16. To improve the situation, IT governance with a strategic vision needs to be enhanced under the stronger leadership of the legislative organs. IT governance thus strengthened, coupled with a clear commitment by executive management of the Secretariat, would facilitate designing and implementing MI systems, and the integration of financial, material and human resources processing systems (as embodied in the systems such as the ERP solution) in a seamless and results-based planning, budgeting and performance-measurement process. Improved efficiency and transparency, change management, re-engineering of operational processes, consideration of best practices and possible use of off-the-shelf solutions could also constitute prominent issues to be addressed in strategic IT governance. The advantages of ERP systems were identified by some organizations. FAO, for instance, indicated that such advantages included support for wider initiatives which would not have been possible with legacy systems, and the ability to monitor and report in a more flexible and targeted manner on the use of resources, thereby improving decision-making and overall performance – a key aspect in times of budgetary constraints.

17. Information is a vital resource at all levels in an organization. Strategic and coherent management of information requires leadership to be exercised all the way through the hierarchy within an organization. In reality, however, the need for such a strategic leadership has not been fully recognized. Design and implementation of MI systems have generally been driven by technical departments responsible for ICT and/or for finance. In order to achieve an optimal level of user-friendliness and usefulness, the introduction of major MI systems has to be guided by a senior official with managerial skills and responsibility at a high level, in addition to competence related to ICT.

18. Such an official, usually called Chief Information Officer (CIO) must be perceived by senior and middle management as entrusted with overall information management of an organization. CIO functions have strategic importance in an organization and the incumbent has a critical role for setting the overall direction for the respective organization, including preparation of an information management strategy. In performing the functions, however, a CIO should not add another bureaucratic layer to an existing management structure. Furthermore, the strategic CIO functions are not necessarily required to be performed by a single person working full-time. These functions could be performed by a senior official on a part-time basis, or by a chief of unit or a committee, although leaving the responsibility at the committee level diffuses commitment, authority, accountability and ultimately trust and effectiveness in performing necessary functions. Responsibility for the day-to-day operation of an organization's IT infrastructure should remain with the unit(s) that is(are) responsible for it. Project champions could be appointed in each relevant user department and entrusted with day-to-day operation of IT projects, as focal points and/or as catalysers who ensure smooth implementation of the IT projects.

B. Definition

19. The term "MI system" has various meanings and scope. An MI system refers to different types of information system, namely:

(*a*) Integrated information-processing systems for administrative and financial transactions, which are normally referred to as ERP systems. The objective of ERP systems is to optimize administrative and financial processes and procedures, to better account for human and financial resources, to introduce performance management tools and to facilitate electronic workflow and thus introduce savings;

(*b*) Specific planning, budgeting and evaluation systems developed outside the integrated ERP solution, or integrated into the ERP solution;

(*c*) Other information systems, not necessarily integrated, which handle limited and specific management information, such as a staff skill inventory or a staffing table; and

(*d*) Specialized programmatic databases or data warehouses, which provide coherent sets of processed or non-processed information, namely knowledge, such as essential policy documents, statistics, maps, evaluation findings and lessons learned, and multimedia resources.

20. The first three types of information system deal with information related to financial and human resources management or with a business process. This information is used for performance measurement and reporting purposes. This report focuses on these three types of information system. The fourth type of information system, which is designed and used as a knowledge management tool, is outside the scope of this report (see paragraph 5).

21. Based on this understanding of MI systems, it should be pointed out that MI systems may mean the following two components, which are in fact the two sides of the same coin:

(*a*) Integrated or non-integrated ICT tools that process a range of financial and human resource transactions, as well as general service transactions (such as procurement, travel arrangements, document management), in a given organization; and

(*b*) Business process or business workflow, translating the organization's rules and procedures into software tools.

22. It is considered that the link between ICT tools and business workflow should be one of the key issues in designing and implementing MI systems. However, few organizations fully considered this link and the impact of new MI systems in the business process, prior to implementing MI system projects. Many organizations came to realize a need for changing their existing business processes during project implementation. Many cases of project failure are actually attributable to the lack of due consideration of this link.

23. In terms of software applications, an MI system refers to seamless interaction across various functional areas based on commonality in data structure. It should generate accurate and timely management information based on real-time data to be maintained and shared between departments. It should enable management to monitor and identify bottlenecks and inefficiencies in the workflow process and take the necessary corrective measures. If such technological functionality is used to support a results-based management process (see paragraph 28-33), the highest potential of MI systems can be realized in the management area.

C. Operational issues

Identification of requirements

24. As stated in paragraph 3, cost-effective design and implementation of MI systems is not an easy task, and the difficulties of such an undertaking should not be underestimated. Not only international organizations, but also national public-sector organizations experience tremendous difficulties in properly designing and implementing MI systems. The experience of the United Nations with its Integrated Management Information System (IMIS), as well as a great number of reports published by national oversight bodies, demonstrate that harnessing technical advantages of information and communication technologies in the management area requires very complex tasks fraught with risks. However, now that an enormous amount of resources have been spent to design and implement MI systems, and valuable experiences have been gained, it is important for the United Nations system organizations to learn adequate lessons from those experiences.

25. A major shortcoming in designing and implementing MI systems in the United Nations system organizations is failure to fully identify requirements prior to implementation of IT projects. Many organizations, which introduced resource-intensive MI systems such as ERP solutions, started implementing the projects in the absence of an overall strategy or a policy for information management and MI systems. Prior to the operational phase of the projects, functional requirements were not fully analysed and working processes not fully documented. Business risks were not systematically assessed, resulting in unforeseen additional financial burdens to sort out problems encountered during project implementation. Instead, external events, such as Y2K, replacement of legacy systems, and

criticism by donors or external auditors drove a number of organizations to aspire to solutions such as ERP. All of these led to cost overruns and/or a delay in implementation of the IT projects, which caused dissatisfaction on the part of users/senior management, not to speak of Member States.

Customization of functionality

26. Commercial products do not usually fully cover the functionalities required by United Nations system organizations, and customization (i.e. adaptation of the commercial products to the requirements of the organizations) is resource-intensive. Virtually all the organizations in the United Nations system therefore face the serious dilemma of reconciling to what extent the functionalities of commercial packages with the mission-critical business requirements specific to the United Nations system organizations, within limited resources.

27. The Inspectors noted, in many cases, that the potential of commercial packages was not fully explored. They could have met a major part of organizational requirements, on the understanding that the remainder could be met by stand-alone systems outside the integrated system that the commercial packages offer. The Inspectors were therefore left with the impression that, if thorough functionality-gap analysis had been made between commercial packages and the mission-critical requirements, the need for customization would have been much less than that actually made by some organizations which introduced ERP systems. In other words, prior to considering the customization of commercial packages, a review of the business requirements and functionalities of commercial packages must be carried out thoroughly in order to ensure that mission-critical business requirements will be supported to the maximum extent by commercial packages.

Results-based management and ERP systems

28. The current overwhelming trend in the national and international public sector is introduction of a results-based perspective in re-engineering business processes; in fact the United Nations system organizations are increasingly called on to adopt a results-based management approach, and use of IT is critical in this context.

29. In reality, however, introduction of an MI system has not always resulted in improved management. Many of the organizations that implemented computerized MI systems failed to design a proper management process based on identification of managerial, procedural and financial requirements for such a process.

30. IT cannot replace good management. Prior to designing an MI system, organizations should review and streamline their existing business processes and identify requirements for improvement. It is noted that streamlining business processes may require action at the International Civil Service Commission (ICSC) level to the extent that such streamlining affects common-system human resources management rules.

31. The United Nations system organizations have gained some experience with their MI systems in a wide range of areas including finance, human resources management, procurement and payroll. Taking into account an increasingly clear mandate from Member States to improve their effectiveness based on results-based management, MI systems in the organizations should have an integrated functionality, like ERP systems, for financial, human and general management areas.

32. Computerized MI systems should be able to generate management information, in particular, performance information that would facilitate decision-making, monitoring and performance measurement. More specifically, an integrated ERP system should be able to have functionality to allow the United Nations system organization to implement a results-based "planning cycle" (i.e. medium-term planning, biennial programme budgeting, monitoring, evaluation and feedback to planning).[6] In order to achieve this, an adequate management process should be designed, determining the role and functions of managers at

[6] In this connection, UNESCO, for instance, pointed out that the planning phase was not supported by available commercial ERP systems. In this regard, UNESCO has developed its specific planning and monitoring system, called "SISTER" which works in complement with its ERP system to realize results-based management.

each organizational level, prior to identifying the most suitable software applications. In the planning cycle, the most critical phase is budgeting, monitoring and evaluation. The budget constitutes the most important policy and operational tool to implement the mandates of the United Nations system organizations. Under results-based budgeting, the budget document comprises financial and non-financial information as performance baseline data (and monitoring and evaluation should be carried out against the budget document). The Inspectors noted that computerized MI systems in the United Nations system organizations are in general not fully linked to the budgeting and performance measurement process based on the budget.[7]

33. In designing and implementing ERP systems, it is necessary to give full consideration to the following aspects:

(*a*) Whether and how an ERP system sustains mission-critical programmes and meets other mandated requirements of the United Nations system organizations, with its operational business process and control mechanisms; and

(*b*) Whether and how an ERP system improves the operations and capabilities of the organizations in performing their mandates.

"Bespoke" MI systems – Integrated Management Information System of the United Nations

34. A typical example of a bespoke (in-house developed) system is the Integrated Management Information System (IMIS) of the United Nations. In 1988, development of the bespoke system was decided in the absence of a commercially available integrated software solution that could meet all the needs of the United Nations. While IMIS is functioning in full compliance with the United Nations Secretariat's business process and procedures, it should be noted that this has been achieved at the cost of US$ 79 million in terms of direct costs (excluding indirect costs) spent over a period of 14 years. IMIS has been developed and implemented without an adequate global strategy.[8] Furthermore, "there was a lack of understanding within the Secretariat of the impact of introducing a new system such as IMIS" and the scope of the project and its budgetary implications were clearly underestimated, as indicated in a report of the Secretary-General. Such a lack of preparedness of the United Nations Secretariat resulted in cost overrun, flaws and omissions in the design, and delays in implementation.[9] It should be recognized, however, that the IMIS project has been implemented in total transparency, with detailed annual reporting to the General Assembly. This transparent practice is worth noting in the light of generally less transparent practices of other United Nations system organizations.

35. In contrast to the experience of the United Nations, there are a small number of United Nations system organizations, such as WFP, that successfully implemented ERP systems, developed and customized from commercially available integrated software solutions. In this context, the Inspectors do not share the view that the "absence of a commercially available integrated software solution that could meet all the needs of the United Nations in the required application areas, noted in 1988, is still a fact in the year 2001".[10] As the experiences in the international and national public sectors show, bespoke developments tend to be expensive and take a considerable time to reach full implementation. In view of this, further expansion/upgrading of IMIS should be approached rather cautiously by duly taking into account a number of factors, including in particular the costs required for upgrading as well as for maintenance.

Project management

36. For the successful operation of MI systems, existence of competent and experienced staff

[7] WFP indicated that its SAP-based ERP system is linked to the budgeting and performance measurement process based on the budget.

[8] The United Nations Secretariat mentioned in its comments on the first draft of this report that the development of IMIS started in the context of a global strategic framework defined in 1998-1999. This means that the whole implementation up to 1997 was carried out without a global strategic framework. It should be noted that in its recent report on the post-implementation review of IMIS at the United Nations Headquarters (A/56/879, paras. 13 and 61), OIOS pointed out that there was no documented long-term strategic plan that articulated the United Nations' vision and commitment regarding IMIS, and recommended the development of such a plan.

[9] A/56/602/Add.1, paras. 16 and 25 (Integrated Management Information System project, Thirteenth progress report of the Secretary-General, Addendum, Lessons learned from the development and implementation of the Integrated Management Information System). Concerning delays, consolidation of data among the eight duty stations is one of the major works yet to be achieved.

[10] Ibid., para. 12.

members in project management is a must. The Inspectors noted that, in many instances, MI system projects are initiated and implemented by IT departments or finance departments which do not necessarily have project management skills. Furthermore, these support-service departments did not fully involve user departments in the designing and implementation of the MI system projects, in which case a sense of ownership of the projects was often not shared by the user departments.

37. A major MI system is a resource-intensive operation. Ineffective operation results in waste of considerable resources and has negative impact on programme delivery and daily management of resources. In the light of actual experiences in implementation of MI systems, the Inspectors believe that MI systems could be managed much more effectively through systematic application of a project management method.

38. Project management requires the following elements: (*a*) clear identification of objectives, benefits and requirements in terms of project deliverables (outputs), which should derive from an overall strategy for information management and MI systems; (*b*) formulation of implementation strategy; (*c*) effective and timely delivery of planned outputs; (*d*) identification of responsible managers for each phase of the project implementation; (*e*) close monitoring of projects; and (*f*) evaluative assessment of project implementation at the end of each phase of the project, including analysis of the gap between initial planned delivery and actual delivery/achievement of objectives. Clear prior identification of requirements and benefits of MI systems in project documents will help organizations not only to design future business processes, but also to allow effective project-monitoring and reporting for the realization of benefits. It is noted that a great number of organizations are aware of project-management methods which are commonly used for various programme activities, although these methods were often not effectively used in practice for IT projects.

Relationship with suppliers

39. The survey carried out by JIU reveals that designing and implementing MI systems often requires medium- or long-term relationships between the client organizations and suppliers of software applications and hardware. The partnership relation lasts in many cases for the whole project life cycle. However, it is noted in many instances that the implications of such a medium- or long-term relationship with suppliers were not thoroughly examined. Poor relationships with suppliers contributed to poor project management in many instances, which resulted in cost overruns and unsatisfactory implementation.

40. Contracts with suppliers should be designed taking into account not only technical requirements, but also implications of such medium- or long-term partnerships with them, which include requirements for an appropriate management structure in the client organizations and commitment by suppliers. To ensure successful implementation of IT projects, full co-operation based on an open dialogue is critical. It is therefore desirable that the United Nations system organizations should ensure mechanisms for smooth communication with suppliers, such as sharing implementation plans with reliable suppliers, with a view to reinforcing the commitment from both sides. In this context, joint negotiation with a small number of suppliers of integrated software applications, selected on the basis of the principle of competition, should be beneficial to the United Nations system organizations. However, this requires a spirit of collaboration among organizations as a prerequisite.

Outsourcing/application hosting

41. Outsourcing is a management tool to enhance effectiveness and cost-efficiency by introducing dynamism in the private sector. Outsourcing has been practised in international organizations since before the creation of the United Nations.[11] In the area of information technology, a number of United Nations system organizations used to outsource payroll, accounting and procurement functions either through the International Computing Centre (ICC) or on a bilateral basis to other organization(s) in the United Nations system. The general trend is, however, rather discontinuation of outsourcing of those functions. This is based on the view that outsourced services did not satisfy the specific requirements of the organizations that were

[11] JIU report "The challenge of outsourcing for the United Nations system" (JIU/REP/97/5, paras. 13-14).

purchasing the services. It should be noted, however, that "insourcing", or doing business by themselves in the IT area, usually requires considerable initial investment to equip the organizations with the necessary infrastructure in terms of hardware, software, human and financial resources for management and maintenance, and it is not cost-effective in many cases.

42. A major part of payroll processing and accounting functions of the United Nations system organizations is common, since their systems have been designed on the basis of a "common system". Functions that are specific to organizations could be performed by stand-alone systems without causing major difficulties in handling such specific management information. As stated in paragraph 26, financial implications of customization aimed at incorporating these specific functions in an integrated MI system are not always cost-effective from the system-wide perspective. It is also worth noting that insourcing involves duplications of common functions (such as payroll processing, accounting, and other functions including procurement, some functions of IT and human resources management). Because of recent technological developments, applications could be hosted (application hosting) by an organization, and other organizations could benefit from such applications as users by establishing an Internet-based connection. Outsourcing through application hosting could offer a cost-effective option for the introduction of MI systems.

D. Financial implications

43. In response to the JIU questionnaire, 15 United Nations system organizations indicated the magnitude of resources they spent for their computerized MI systems. An aggregate amount of these resources totals around US$ 302 million. The United Nations spent US$ 78.6 million for its IMIS, and five other United Nations system organizations spent at least US$ 25 million each for their MI systems (see table A). It was noted, however, that the 15 organizations computed the costs using different bases, which led to different interpretations of financial implications and different ways of computing them. Some of the organizations indicated only direct costs, and others computed the costs on a wider scope including indirect costs. In spite of these limitations, this amount can constitute a base to estimate the magnitude of resources spent for designing and implementing computerized MI systems in United Nations system organizations. On the assumption that cost information provided by enterprises and public-sector institutions covers in general less than 50 per cent of the total costs actually incurred in designing and implementing their MI systems (Gartner Group[12]), and taking into account the fact that the United Nations system organizations did not include costs of legacy systems in their estimates, the total actual costs incurred over the last ten years by all the United Nations system organizations in introducing the current and legacy MI systems, would be probably close to US$ 1 billion.

Cost transparency and comparability

44. Most of the United Nations system organizations contacted by JIU indicated the financial implications covering the following costs:

(*a*) Software applications (purchase of the software; licence costs);
(*b*) Training;
(*c*) Consultancy services for designing and customization (adaptation of the system to requirements);
(*d*) Costs of staff involved in the MI systems project implementation;
(*e*) Maintenance costs, including help-desk and functional support;
(*f*) Cost of upgrading, expansion and additional licences; and
(*g*) Additional costs of infrastructure (communication expansion, computers and network).

45. As stated above, each United Nations system organization computes IT project costs differently, and no common way of computing the costs has been established. A commonly understood costs classification is important to ensure transparency and comparability of costs involved in IT projects under implementation by the various United Nations system organizations.

[12] Gartner, Inc. is an independent provider of research and analysis on the IT industries. The company provides comprehensive coverage of the IT industry for about 10,000 client organizations.

E. Inter-agency cooperation and coordination

46. There have been very few cases of effective collaboration in the area of MI systems in the United Nations system organizations, in spite of the general commonality in the United Nations system in financial and human resources management, as well as general services management, and in spite of a huge potential for cost savings. Many of those organizations are, in general, designing and implementing computerized MI systems, without effectively sharing their experience and without proper coordination. A major shortcoming of such an approach is that Member States are forced to bear costs that could be avoided.

47. In this context, the former ACC mechanism the Information Systems Coordination Committee (ISCC) failed to come up with a strategic direction for the future development of MI systems in the United Nations system organizations. It is noted, however, that HLCM, a new CEB organ, is seeking ways to make the most of technology by improving the management of cross-cutting ICT throughout the United Nations system. Under the leadership of the United Nations Secretary-General, in his capacity as the Chairman of CEB, HLCM should facilitate inter-agency cooperation, promote strategic alliances, create a visionary environment in which similar or like-minded groups of organizations, in terms of mandate, size and modality of functioning, would be able to create synergies and obtain economic benefits from sharing solutions. For such a joint scheme to be successful, however, it is advisable that cooperation should start at the phase of streamlining the working processes, procedures and practices of the respective organizations. It should be noted here that the recent developments related to ICT within the framework of HLCM are largely in line with this strategic direction.

48. In spite of these positive developments, the Inspectors believe that HLCM, which is merely a body for coordination among the secretariats of the United Nations system organizations on a voluntary basis, has a limitation in its role. Thus it is vital for the Member States (legislative organs) to play a much more active role in terms, in particular, of sending a strong and clear message, with one voice, to the secretariats of the respective organizations on the need for enhancing effective inter-agency cooperation and coordination in respect of developing and implementing MI systems. In this context, the United Nations General Assembly should play a key role.

Annex*

Table 1:

Strategy for information management

United Nations	There is no documented long-term strategic plan that articulates the Organization's vision and commitment regarding IMIS (A/56/879, para 13**, Report of OIOS on the post-implementation review of IMIS at United Nations Headquarters). The Advisory Committee on Administrative and Budgetary Questions (ACABQ) also requested the Secretary-General to address the long-term strategy for IMIS (A/55/7/Add.8, para. 7).
UNDP	UNDP has developed an ICT strategy that was approved and adopted in January 2002. The ICT strategy is considered to contribute to the achievement of the Business Plan targets, with special focus on: (*a*) knowledge management; (*b*) results-based management; (*c*) corporate resource management; and (*d*) infrastructure.
UNHCR	A technology strategy exists. But no information management strategy exists.
UNICEF	A progress report on the UNICEF strategy and investments in information technology (E/ICEF/1999/AB/L.6), which was submitted to the UNICEF Executive Board, outlines the following strategic directions: (*a*) IT management, governance and organization; (*b*) integrated systems for resource management; (*c*) exploitation of the Internet and Intranet for knowledge management; (*d*) global connectivity; and (*e*) the IT infrastructure required to support these areas. Appropriate use of IT is considered to be key to achieving maximum corporate performance and proper fulfilment of its mandates. The strategy also considers that through the development and use of new integrated systems, the IT structure facilitates the implementation of reform processes aimed at improvement of management. UNICEF has an information technology strategy and has been implementing it.
UNRWA	An IT strategy was recently developed and is being reviewed by senior managers as part of the approval and finalization process.
WFP	"An Information Strategy Plan for the World Food Programme" (ISP) is a formal information strategy plan which is the basis for the entire migration from the mainframe-oriented computing model to the current client server-based model. ISP was presented in November 1995 to the CFA (then governing body of WFP) along with a proposal for a comprehensive Financial Management Improvement Programme (FMIP). Progress on the implementation of FMIP has been a regular agenda item on the subsequent Executive Board meetings.
ILO	ILO does not yet have an official information strategy or policy, other than the needs and requirements which flow out of the strategic objectives. This is currently being developed. Until such a policy/strategy has been formulated, it would be premature to consider the need for a CIO. ILO has started to develop an Enterprise Resource Planning system, with a view to developing an information management strategy for its headquarters and field offices. The Governing Body formally approved it. The system implementation project is at its start-up stage. The governance structure of the project has been defined and presented to the Director-General for approval.
FAO	Substantive aspect covered by Strategic Objective E.1 of the Strategic Framework 2000-2015 which seeks to provide "An integrated information resource base, with current, relevant and reliable statistics, information and knowledge made accessible to all FAO clients". This is further elaborated in the Medium Term Plan (MTP) 2002-2007 where it is estimated that 22.4 per cent of total resources are allocated to E.1. The administrative aspects were also covered in the Strategic Framework under the cross-organization strategy "Continuing to Improve the Management Process". The information strategy has been approved by the governing bodies. They were involved in the preparation and approval of the Strategic Framework through the use of questionnaires and consideration of several drafts by thirteen different meetings of technical committees and governing bodies. The Strategic Framework was then formally approved by the Conference and the MTP by the Council. The IT strategy was formally endorsed by members, but prepared in response to a request from an inter-agency cooperation committee on IT.
UNESCO	UNESCO does not have a formal information management plan, but its IT strategy contemplates, in many aspects, an information management strategy. The UNESCO Information Resources Development Plan (IRDP), which was initially proposed for 1990-1995 and later extended through 1997, resulted in the development of UNESCO infrastructure and promotion of the use of IT in the secretariat. Another product of IRDP was the Information Technology Master Plan (ITMP), which was presented to the General Conference in 1997 and focused on the changes in the processes of planning and management of UNESCO. ITMP provides the overall development framework, performance objectives, proposed architecture of the information system to achieve these objectives and a transformation programme to implement the system. The objectives of the IT Master Plan place emphasis on the simplification of procedures and on improvement of management and use of information. It identified the development of the "Programme Planning and Management Systems" and "Core Management and Administrative Systems" to be a priority. ITMP, introduced as a first implementation of the governing bodies' decision to take steps in that direction, was submitted to member States for consultation, and was approved by the General Conference at its 28th and 29th sessions (1997 and 1999), thus becoming a mandatory programme for the organization.
ICAO	ICAO has an approved ITMP. Within the framework of an MI system project, ICAO considered that a big-bang approach was not justifiable financially and presented high risks in terms of management towards a successful completion. Therefore, a basic financial system was considered one of the highest priority items of this plan. Other modules of an ERP would be added later after the successful implementation of the financial plan. The IT Master Plan was reviewed and approved by the Senior Management Group at ICAO. Along with the presentation of other IT

* This annex has been prepared on the basis of inputs as provided by the United Nations system organizations in 2001-2002, unless indicated otherwise.

** See footnote 8 of the present report.

	projects, a business case for the development and implementation of a new financial system was submitted to ICAO Council members for discussion, approval in principle and request for funding. The External Auditor, in his report to the legislative organ, reinforced the view expressed by the ICAO secretariat on the paramount importance for ICAO to develop and implement a new financial system. In 2001, the ICAO Assembly approved initial funding for the development of new financial management systems.
WHO	WHO has a strategy. Further work is required to give it more precision. The WHO legislative bodies have not yet been involved, but the secretariat will put forward the plan for the use of the IT fund to the Executive Board in 2002.
UPU	Although UPU has not formalized a strategic plan regarding the management of its information system yet, different measures have been taken, in particular, for: (*a*) involving the management in the decision processes and controlling management of projects on the organizational, functional and technical levels (costs, methods, return on investment, information technology); (*b*) implementing the strategic and tactical objectives of the programme and budget taking the needs of member States and the budgetary constraints into consideration; (*c*) identifying the cost centres and rationalizing the production/output tools of the information system. As UPU is a small international organization, it does not get a large enough budget (2.4 per cent of the annual budget of UPU which amounts, to SWF 70 million) to develop its information system towards an integrated management information system.
ITU	ITU does not have an information management strategy per se. ITU has an information technology strategy that has been documented in a summary format (e.g. for the HL/CCAQ session in February 1998). ITU is expected to develop a more formal information technology strategy in the near future, guided by a consultative process involving senior management. The ICT Committee (ICTC) has prepared a prioritized ICT project list. The work and role of ICTC was briefly presented to the ITU Council at the 2001 session.
WMO	The Information System Strategy was developed in December 2001. Its purpose is to provide the WMO secretariat with an information technology framework to assist it in fulfilling the programmes of WMO during the period covered by the fifth long-term plan (2000-2009). The framework covers the provision of systems and services. It is designed to meet the secretariat's computing and communication needs to the greatest possible extent and within available funds.
IMO	The IMO strategy for information management has three objectives: (*a*) to empower the organization's various stakeholders in access to and use of the organization's knowledge bases; (*b*) to add value to the organization's policy and administrative decision-making; and (*c*) to promote effective and efficient working and delivery of the organization's programme. To achieve these objectives, the organization's IT strategy has been to establish, maintain and develop a core 24/7/365 IT infrastructure which serves three major clients, namely staff member users, the organization's membership and the public at large. To this end, a substantial investment has been made in hardware and software, which meets the IMO strategic information management requirements, notably by development of web-enabled applications which promote knowledge sharing. IMO is currently tendering for a mid-range ERP system to drive developed budgeting and financial control systems, and progressively, HR systems. The policy aim is to promote accountability and decentralization as part of the Secretary-General's Change Management Programme. The ERP choice will be made on the basis of the "the business case" and the expected rate of return. An Intranet system provides the membership with online access to documents, which is linked to a document management system. The organization's Publication Service is now enabled by e-commerce applications.
WIPO	WIPO concentrates on strategy development at the programme level. The CIO, as head of the ICT Programme, presented a vision and mission for the programme to the WIPO Standing Committee on Information Technologies (SCIT) in June 2002. The document was agreed by the Standing Committee and is now acting as the framework for the drafting of a full ICT strategy document to be submitted to SCIT in due course. The content of the ICT Programme itself is approved and monitored by SCIT and via the wider organizational programme and budget process.
IAEA	IAEA Medium-Term Strategy (Goal E) defines "excellence in management", which includes an objective that deals with the greater use of IT for improving the efficiency and effectiveness of programme implementation. A medium-term strategy specifically devoted to information management and IT has been prepared and is under review by a high-level management committee, the Agency's Programme Coordination Committee.

Table 2:

Management information system as management tool

United Nations	IMIS was developed in advance of the elaboration of the strategy, but it is an integral part of it. IMIS supports all major administrative activities of the United Nations Secretariat, including budget execution, finance, human resources, payroll, procurement and travel. The Integrated Monitoring and Documentation Information System (IMDIS) was originally designed and maintained by the Department of Economic and Social Affairs (DESA) to respond to actual needs of management. It is interfaced with the pre-existing budget formulation system, and supports the planning, programming, monitoring and evaluation cycle. IMDIS was delivered in advance of the adoption of results-based management, but its design supports it, and since the implementation of its first modules in 1993, it has enabled the delegation of authority to be implemented.
UNDCP	The financial part of ProFi currently being implemented was instituted to address serious shortcomings in existing systems (lack of audit trail, insecurity of information, difficulty of extracting information, inconsistent data held by different systems) as well as to enhance fund management. Previously, no financial planning tool was available except those stand-alone tools used at the project level upon the initiative of individual staff. Further, UNDCP is mainly funded by voluntary contributions, and most of those funds are earmarked for particular projects. Managing these funds efficiently is a daunting task and ProFi was seen as an important tool to that end. Also, it was decided that the system could be accessible over the Web, thus enhancing decentralization to field offices, with all offices at headquarters and in

	the field accessing one repository for data. ProFi was seen to be an important tool to increase transparency, particularly vis-à-vis donors. Since ProFi is not an activity-based system, it can only indirectly contribute to results-based budgeting. It is designed, however, to be a major innovation to delegate responsibility for project financial management to programme managers without central direct control, thereby necessitating increased accountability while facilitating central monitoring. Delegation of responsibility for human resources is outside the system. The financial system can facilitate delegation, but it cannot impose it; that requires the commitment of senior management, in particular the Executive Director. UNDCP will start implementation of phase II of ProFi beginning hopefully in September 2001. The project will last approximately nine months, with a target completion date of 1 July 2002. Phase II will address the concerns of programme managers for a tool to integrate financial monitoring with substantive monitoring of projects, thus providing a better foundation for results-based budgeting and management. UNDCP is currently consulting with sister agencies on results-based management and what approach to take, and a proposal will be sent to the governing body in October 2001. It is expected that ProFi phase II (the project management system) will form an integral part of that proposal. Indeed, the implementation of the project management system has been encouraged by the members of the Commission on Narcotic Drugs. The new MI system was expected to: (*a*) provide a secure repository for data with an adequate audit trail; (*b*) provide consistency of data through a unique central repository; (*c*) provide more transparency, particularly for donors; (*d*) allow better fund management, freeing up resources for new projects; (*e*) streamline the information flow on projects; (*f*) enable field offices to view and input data over a Web interface; (*g*) provide ease of extracting data and enable cross-project analysis; and (*h*) provide savings by eliminating redundancy and repetitive manual entry of data. These results appear to have been achieved, or are well on their way to being achieved. Since the project had only just been completed in May 2001, there were still "teething problems" or not fully realized benefits. For instance, efficiencies were achieved in some offices, but no decision on redeployment has yet been taken. Further, not all financial reports for senior managers are available on the Intranet; further training is taking place; field offices have yet to enter expenditures into the system (which is required since the official channel through the agencies, such as UNDP, is notoriously slow).
UNDP	UNDP presently uses its versions of the IMIS Releases 1, 2, 3 and 4. Experience and recent consultant studies show that UNDP needs have only been partially met by IMIS, and UNDP is embarking on an ERP implementation using PeopleSoft products. The first phase of ERP functionalities is scheduled for roll-out on 1 January 2004.
UNFPA	Current MI system applications only partially meet the needs of the management. Current systems do not meet results-based management needs.
UNHCR	The current management information systems provide a significant amount of information for managers to make decisions. However, the current systems are old and were not designed to provide results-based management information.
UNICEF	There are three major integrated systems in use providing the entire organization with state-of-the-art, commercial-strength technology and a common database set by which UNICEF can more effectively manage and be accountable for the use of human, financial and. physical resources: (*a*) ProMS is a field-based system for planning, budgeting, requisitioning, spending and monitoring the use of funds and other resources against programme objectives; and for payroll and administration of local field staff; (*b*) FLS is the central financial and logistics system which enables UNICEF to meet its statutory accounting obligations, and provides management with the necessary financial information to ensure that all resources are protected and managed efficiently and effectively on a day-to-day basis; and (*c*) the human resources module of IMIS (IMIS-HR), developed and maintained by the United Nations, is currently the UNICEF central human resource management system, in which the Division of Human Resources manages central transactions regarding recruitment, rotation, payment, provision of benefits, and payroll for those staff managed by headquarters. In 2002 UNICEF will initiate a project to replace IMIS with the same commercial application supporting FLS to further enhance seamless integration. ProMS (Programme Manager System). The deployment of ProMS to all field offices was completed in September 1999. The personnel and payroll module was fully deployed in early 2002, and integrates payroll and human resources management, linked to plans and budgets, and supports decentralization of the human resource management function for local staff to the country office level, employing a single standard payroll function that conforms with United Nations requirements. ProMS provides a linkage between programme and project plans, outputs and budgets, and is a tool for more accurate budget monitoring by more closely integrating the field system with the headquarters system, thereby facilitating timely financial reconciliation and resource monitoring. It has eliminated repetitive tasks and duplication of entries, and customized systems and data in each field office; it provides early warning of problems, and a standard planning feature. FLS (Financial and Logistics System): FLS is based on the SAP R/3 commercial enterprise resources-planning software package. The configuration of the final prototype based on UNICEF requirements was completed in April 1998, followed by testing, fine-tuning and data cleansing, data upload, development of critical interfaces and go-live in January 1999. FLS integrates and maintains business and transaction data from three headquarters locations (New York, Copenhagen and Geneva, including the three warehouse locations in New Jersey, Huningue and Copenhagen), in real time and in a single database that is interfaced with ProMS and IMIS. FLS is a unified system that has streamlined UNICEF business processes, simplified systems maintenance and reduced data entry; it automatically enforces many business rules and automates year-end processes and online reporting, thus permitting more integrated and timely management reports. A treasury function is being implemented in the fall of 2002. Many management reports for headquarter purposes are obtained directly from FLS. For field offices, as data may be stored in both FLS and ProMS, it is necessary to merge specific detailed data from the two systems. UNICEF has implemented a reporting platform utilizing a set of commercial applications from COGNOS for this purpose, and reports are routinely sent to the field offices for management end reconciliation purposes, as well as generated for headquarters management support. UNICEF will upgrade to version 4.7 in 2003, in which SAP has integrated its core functionality with add-ons that better support business processes that are common to international organizations such as UNICEF.

	IMIS (Integrated Management Information System) Human Resources: UNICEF installed Release I of IMIS, which covers personnel in May 1998, and Release II for entitlements in January 1999 respectively. UNICEF also implemented major enhancements to make the system function at a level equivalent to that of the legacy systems. UNICEF also developed recruitment and classification modules as those present in IMIS were not adequate. Most of these add-on modules and enhancements have been incorporated into the IMIS base system and are now available to other United Nations organizations. Implementation of Release IV, covering payroll, was implemented in March 2002. UNICEF has also implemented an in-house human resource information system (HRIS) drawing on data from IMIS to supplement weaknesses or lack of functionality in IMIS. Due to limited functionality in IMIS to support career management planning, skills profile, performance monitoring, and capacity development functions in a meaningful way, UNICEF took a strategic decision in 2001 to migrate from IMIS to SAP/HR. This project is scheduled to be initiated in late 2002. It will provide a "single integrated system", which would entail finance, logistics, contributions management and human resource functions, providing a cost-effective approach in reducing redundancy of information.
UNRWA	A management information system (MIS) project is currently under implementation for two major modules, Finance and Payroll/HR. The project started prior to the development of the IT Strategy. The IT Strategy incorporates this project as a major element of the strategy. The Payroll/HR module of the MIS project was designed to respond to a management need to move the location of the existing batch payroll system away from the previous headquarters location of UNRWA, Vienna, Austria, to its new headquarters location at Gaza, as a first need. Other benefits gained are mostly related to modernization of the system and in particular having an online system, replacing a batch system, by which an end-user would benefit from real-time access to data and information. The finance module was designed to respond to a perceived managerial need to reform the financial management system, for enhanced budgeting and accounts control, and in particular to reflect faster generation of reports on the agency's financial situation, as well as the definition of key performance Indicators (KPIs), as part of the management reform process and as requested by the agency's donors. The system is to support management reform in the planning, programming, budgeting, monitoring and evaluation cycle. The agency is currently implementing a package solution for reforming the Finance and Payroll/HR administration. This is a prerequisite for implementing a computerized MIS-based system for measuring the KPIs, necessary for fixing accountability and responsibility. The system is an ERP package, customized and configured according to the needs of UNRWA. The decision to outsource the payroll module was based on the recommendation of an internal working group, while the decision to outsource the finance module was based on the recommendation of external consultants assisting with the financial system reform. A project manager is responsible for the overall implementation under the guidance of a Steering Committee composed of three directors and the comptroller. The project manager has a team of IS resources as well as resources (senior and end-user level) from personnel and finance departments to assist him/her in this matter. The scope of the MI system was defined as delivering a working solution as per the boundaries set in the contract, while the cost has been capped to the lower of either the upper limit or actual cost. The contract explicitly includes a clause to the effect that the responsibility for customizing the product to fully meet agency requirements lies with the vendor and the agency will not be charged additional costs incurred by the vendor in doing so. Any additional charges can arise only for changes in the scope or for delays attributable to the agency. Some resistance was faced at the beginning, as the new system was quite different from the system currently in place. However, this has now been overcome as a change management consultant has been working with the project team and users in addressing change issues including the training and introduction of new processes. The training is done on a "train the trainer" basis. "Champion users", in turn, train the end-users. The training was done after the product was configured and customized. This has made the training focused on each module and more relevant to the agency. Refresher courses are also being organized for the "champion users", senior staff members from Personnel and Finance who have a thorough knowledge of the staff rules and regulations, as well as being communicators.
WFP	The FMIP was requested by the WFP donors as a mandatory step to improve financial management and reporting. FMIP evolved to include management improvement in the operations areas as well as other support areas. FMIP was an extrabudgetary programme funded by a number of WFP donors. FMIP is intended as a tool for management. As the programme is in the progress of decentralizing decision-making to managers, it is expected that all levels of the organization will use the FMIP systems. All budgetary control, commodity movement, HR processes, procurement, travel, and project management will be performed through the FMIP systems. Managers will be responsible for all actions taken within their units or divisions. In preparation for the creation of the FMIP systems, many of the divisions took the opportunity to reengineer their processes. This allowed for the new FMIP systems to be implemented with the already re-engineered processes. As with any large organization, there is always room for additional process re-engineering. Many of the infrastructure objectives have been met with all offices connected via Lotus Notes to exchange e-mail and replicate Notes databases. The client-server infrastructure has been implemented in each country office in preparation for the new systems. The financial management, procurement, project management, programming, resource mobilization, and commodity tracking system has been completed and implemented. The final remaining component of FMIP is the HR and payroll module. It is expected that this module will become operational in January 2002.
ILO	The project is in the stage of initiation; the discussions of its business case and detailed scope have not been finalized yet. At this point, the scope is expected to include finance (general ledger, accounts payable and accounts receivable), budget preparation, definition, monitoring and control, treasury, service contracts, travel, payroll, human resources (HR administration, entitlements, career management). That functionality is expected to be delivered for the headquarters and field offices. Inclusion of support for the programme formulation, planning, execution, monitoring and evaluation is also considered. In the next step, the agreed scope will be a basis for formulation of the evaluation criteria of the systems platforms. Oracle, PeopleSoft, SAP, Agresso, and RAMCO are examples of those platforms that will be evaluated. Once the platform is selected, the definition of the scope will be revisited and turned from the perspective of the selected platform, feasibility, project budget and expected delivery time. The intention is to use project management

	methods, which are appropriate for this type of project, in a disciplined manner. In particular, that means (a) an institutionalized governance structure for steering and directing the project by ILO management; (*b*) an institutionalized issue resolution procedure; (*c*) business case, project scope and organization and plans; documented and communicated across the organization; (*d*) different forms of participation by ILO business users; (*e*) project planning and monitoring; (*f*) reviewing and acceptance of deliverables at the end of project activities; (*g*) scope control and requirements change management; (*h*) organizational change management; (*i*) consulting service contracts which are formulated in the way that protects ILO interests; (*j*) one project team covering all areas of the scope; (*k*) bulk of work being performed in cross-departmental teams; (*l*) identification and monitoring of risk factors, etc. The delivered system will be the main work tool for the finance, budget, procurement and human resources staff, and for the selected administration support staff across the organization. They will use the system on a daily basis to perform the majority of their work tasks. At present, systems development and maintenance in ILO is distributed between departments and central coordination of these activities and resources is missing. It poses a challenge to the implementation of an integrated system that requires highly coordinated and collaborative cross-departmental efforts.
FAO	The Strategic Framework for FAO: 2000-2015, issued in 1999 and approved by members, reiterated the organization's commitment to improving the management process through a strategy to develop and implement integrated supporting systems in the areas of financial accounting and management, human resources management, and programme planning, budget preparation, work planning, and implementation monitoring (this includes creating a data warehouse for validated corporate data as a primary source of management information), and to provide appropriate analytical tools, so that users can make best use of available data. One of the main components of the Oracle Project is the replacement of the existing planning, budgeting and work planning system (PLANSYS). The replacement of PLANSYS will involve the introduction of both additional Oracle Application modules, bespoke applications and additional data warehouse capabilities over the next 12-18 months. The Strategic Framework for FAO 2000-2015 committed to strategies that create a management environment that facilitates the implementation of the Organization's corporate strategies and the achievement of its strategic objectives by, inter alia, realigning authority, responsibility and accountability to better reflect the new environment, including assigning primary responsibility for budgetary management to programme managers. Furthermore, FAO continues to build a management culture that clearly defines accountability for human resources management, including performance management systems linked to corporate strategic objectives via the Organization's programme planning systems. The "new environment", referred to above, is the results-based programme management orientation envisaged by the Strategic Framework. Some of the information systems to achieve objectives are already in production, while others are under development. Hence, the overall objectives of the MIS planned for development as part of the Oracle Project were to have it used as a tool for management improvements within the framework of results-based management. To this end, various actions/decisions were taken up by top management in the financial area to drive the organization towards more delegation of responsibility and accountability to "budget-holders" and project managers. One of the key concepts underpinning the Oracle system is that of the budget-holder – the individual with responsibility for managing funds under delegated authority.
UNESCO	The first effective implementation of the master plan resulted in the creation of the SISTER system (System of information on Strategies, Tasks and the Evaluation of Results), the tool used to support the decision to introduce results-based management as the backbone for all planning and monitoring of programmes. In 1999, the General Conference approved the decision to replace the ageing mainframe systems by integrated management and administrative systems, in two separate projects: one for finance and budget and one for human resources management and payroll. The first one (FABS – Finance and Budget System), based on SAP, began operations in January 2002. Pending the completion of the Human Resources Management System, two thirds of the expected renewal of the legacy system are now operational – SISTER, used for programming and budgeting (designing results and strategies, yearly allocation budgets, monitoring programme execution, etc.) and FABS (contracts management, reserving funds, monitoring expenditure and income, travel management, etc.). Indeed, the first round of MIS was explicitly designed to introduce an in-depth reform of programming, monitoring and evaluation, by linking all three functions into one single system based on the professional needs and involvement of all responsible officers, at all levels. Moreover, the system enforced a results-based management approach to programming and monitoring, providing transparency and using it as a leverage to drive the whole organization towards feeling accountable for the effective achievement of assessable results. Designed with a specific view of enforcing a results-based management approach throughout the organization, together with a move towards an e-based communication system, SISTER was used as a means of introducing results-based management, through workshops (based on mainframe techniques), training sessions, discussion groups, results-drafting exercises, etc. Structured in a way that calls for each and every programme officer to pledge his/her own responsibility in the process of programming (through a bottom-up validation process involving each level's assessment and involvement), it allows for full decentralization of responsibility, with a clear line of accountability and mutual monitoring. FABS supports the evolution of the working processes through delegation of authority to the managers, while ensuring transparency and accountability. SISTER is open for consultation to member States, to allow them to follow up by themselves detailed implementation of the programme, which should limit reporting requirements, or upgrade reporting to a more political, wider scope. FABS is currently used only internally. The introduction of SISTER did entail a revision of programme-making, and is currently impacting programme-monitoring. Member States have stressed their will to move along that way, and the existence of the new tool served as a guiding rail to comply with that pressing demand. The customization of the SAP software in the FABS project called all workflows and working processes into question, and helped reconsider many a settled pattern of activity. When the system is operational house-wide, and fully adopted in daily use by all stakeholders, it is likely that a significant re-engineering of the organization will have been achieved. One of the deliverables of the FABS project is a Benefit Realization Plan, which identifies indicators to be put in place to evaluate the benefits from implementing the new system and processes. Although there are not yet established mechanisms to collect and evaluate these indicators, given the current priorities to finalize the implementation (data migration from the mainframe, implementing adjustments to

	the system based on the experience acquired during the start of operations, etc.), this plan can be the basis for the evaluation of results obtained with the system implementation. The numerous changes brought about by the systems allowed intensive communication between their champions and most to the staff, opening as many channels to change as successful helping interventions were performed. One of the major impacts of SISTER, still to be developed and accepted, will be to bring monitoring higher on the agenda. While there used to be a free hand on implementation, once the bottleneck of obtaining a budget had been passed, quarterly monitoring will, four times a year, raise questions about what is going on, and make the answers public.
ICAO	In developing a new financial management system in the near future, consideration would be given to incorporating as many functionalities as possible to enable the system to function as an effective management tool. With respect to management information systems at ICAO, the financial, personnel and other management systems were developed over the last 20 years. All of these systems are now considered obsolete, and the need to upgrade or change them has been reported to the legislative organs by the ICAO secretariat as well as to the external auditor. Recognizing these needs, the legislative organs have now approved funding for the changes in the 2002-2004 triennium. Action is now being taken to acquire a new financial management system.
UPU	Le Secrétariat de l'UPU possède de nombreux instruments de gestion permettant à la direction générale et aux responsables des autres services de suivre l'évolution des principales activités et de régler en fonction des circonstances. Plus précisément, les outils actuellement en fonction sont (*a*) le système comptable classique permettant le suivi de la comptabilité de l'UPU; et (*b*) le programme et budget: système de comptabilité analytique développé sur Excel permettant un suivi basé sur les activités de l'organisation (results-based budgeting).
ITU	The Financial Management System (FMS) was implemented on the basis of revised financial rules, implemented in connection with a decentralized budgeting process and cost accounting that were part of the ITU High Level Committee (HLC) mandated ITU reform process in the early 1990s. The aim was to support financial management with decentralized budgeting and cost recovery for internal services while conserving centralized control, with timely and transparent reporting. Although the original intention was not to directly couple the FMS budget and expenditure management with operational measures, some information from the FMS SAP system is used in monitoring operational cost efficiency. There is a potential for doing this more widely and in more depth. Delegation of some financial decision-making was enabled with FMS. Extension of financial reform and of FMS to include results-based budgeting is under study.
WMO	The financial system was implemented in 1999 to address Y2K issues with the legacy financial management system. This is being used to decentralize the management of budgets while maintaining a centralized financial entry and quality control structure.
IMO	The planned ERP system will strengthen the current financial, accounting and reporting systems and provide, from 1 January 2004, line managers and programme managers with online access to programme and project expenditure whether in respect of regular budget programmes or technical cooperation programme activities. This information is currently available by the provision of special reports since the various accounting, budgeting and project management systems are not linked. Information management systems go beyond administrative processes. IMO is reviewing alternative means of disseminating and promulgating its instruments and information assets, to the industry and public at large. IMO has a priced publications programme which, through e-commerce dealership arrangements, enables ready access to publications.
WIPO	The Administration Integrated Management System (AIMS) project was formally launched as part of the WIPO programme for the 2002-2003 biennium with the main objective of replacing the organization's ageing finance-reporting systems with a modern integrated accounting and budgetary control system which will be able to support the WIPO results-based budget and the associated way that WIPO manages and presents its financial information. In terms of improvements to current business functions, the processes within the finance and budget areas will be streamlined to improve work productivity. Requirements from internal and external auditors for transparency in, and security of, financial operations will be addressed. There will be a significant improvement in the quality and the quantity of financial management information available to programme managers within WIPO, thus making it easier for them to monitor their budgets for the projects and activities under their responsibility. Once a reliable finance and budget core system is established, with robust interfaces with existing systems, it is expected that future system modules will be developed on the same software platform for other administrative services.
UNIDO	A financial performance control system (Agresso Financials) was implemented in 2000-2001.
IAEA	The future MI system will support managerial needs during the planning, programming, budgeting, monitoring and evaluation cycle. IAEA is in the process of transition to a fully results-based framework. More thought needs to be given to how the future MI system might help improve management. Over the last several years, IAEA has been reviewing its decision-making processes, aiming to delegate decision-making and responsibility, including accountability, to the lowest practical level of management, i.e. where the activities and transactions occurred.
OECD	Most MI system projects were initiated in the context of a review of management cycles and processes launched by the organization. Systems developed are part of a progressive reform of rules, budget design, and management procedures. Responsibilities were delegated to management at different levels – an annual performance review process based on objectives and accomplishments was introduced in parallel.

Table 3:
Costs/benefits and risk analyses

United Nations	When the IMIS project was initiated in 1988-1989, it was difficult to estimate benefits since current costs of existing manual procedures were not known and the risks of such a project were not clear. The implementation of the system was a business requirement since the existing systems were obsolete, not all duty stations had comprehensive systems and the data could not be consolidated easily. Consequently, no risk analysis was done. The initial concept was to customize the FAO system that was being implemented. In view of the high financial demands of FAO and of the problems encountered by FAO with the implementation of the financial modules, the United Nations then opted to develop its own system. Details of costs and project budgetary information can be found in the Secretary-General's progress reports on IMIS.
UNDCP	No formal or comprehensive cost/benefit analysis was conducted. But several years ago a feasibility study was conducted which aimed to address serious deficiencies in the old system, and estimated the costs of the new system. Further, a detailed request-for-proposal was prepared which identified the functionality required.
UNDP	Cost and benefit issues were addressed on an aggregated basis in the consultancy analysis carried out during 2000 and 2001.
UNHCR	With regard to the current ERP initiative; projected costs and benefits were clearly indicated though specific benefits figures were not explicitly defined.
UNICEF	For the ERP solution, requirement specification was drawn up and due diligence undertaken in the selection of the ERP solution. For the SAP/HR project, a business case was made, including cost/benefit analysis.
UNRWA	Thorough cost analysis and general risk analysis were conducted for both components. Expected benefits only addressed savings and efficiencies. It is not yet possible to determine if they have actually been realized as the project is still in the implementation phase, expected to be complete by March 2002. It is too early to measure benefits, as the systems are not yet operational. Nevertheless, for the first module (Payroll/HR), benefits should be easily measurable, as it is comparable to the existing system. For the second module (Finance), benefits are more difficult to measure as the new system introduces additional functionality and forces changes in some business processes.
WFP	A preliminary cost-benefit analysis was performed at the initial creation of FMIP. The major benefits are expected to be, inter alia – enhanced reporting to donors on contribution utilization, enhanced budgetary control, more efficient business processes, extensive connectivity to all country offices, decentralization of access to systems to the field offices, increased access to information to enable quicker and better decisions.
ILO	Cost/benefit and risk analysis is a part of the IT project. It is too early to say anything on expected benefits.
FAO	A risk analysis was included in the Project Charter for the Oracle project. This identified three preliminary risks: (*a*) the project might exceed its planned timescale; (*b*) the project might fail to adequately meet declared objectives; and (*c*) the project might exceed budgeted costs. The added value of the MIS for the organization is having supported the decentralization process, having made managers more accountable and more responsible for their projects and the administration of their funds, and having allowed the organization to grow in flexibility and competitiveness in a continuously evolving and challenging business environment. Substantial savings in staff costs have been realized, whereas savings which were expected in system maintenance and support have not yet materialized. This is due to the higher user demand for interfaces, reports and bespoke system enhancement and support, which has offset the savings in the core functionality maintenance (the ERP is indeed stable and requires very little support). In addition, decentralization of project management to the field offices has only been possible with the assistance of application systems such as the Field Accounting System and the Data Warehouse.
UNESCO	The major drive for the replacement of the legacy computer systems with new integrated systems was the need to increase efficiency and improve the quality of information available to management and governing bodies. Although it is expected that the overall cost of management will decrease, as well as increases in benefits, no formal analysis on cost/benefits are recorded. Formal risk analysis has been conducted during the planning for the implementation of FABS. It is too early now to assess realized benefits, and probably costs as well, since SISTER was fully used to prepare the programme and budget of 2002-2003 and FABS went live in January 2002, which still leaves an open ended period of adjustments, improvements, tuning, etc. that will still add costs to the final implementation. The introduction of the system created the conditions for savings, that will only show up when all processes and workflows are established, creating opportunity for optimizations in the structure. As compared to the market cost of such software packages, and to the implementation cost of such systems, SISTER was produced and rolled out at a cost way below usual references. This was indeed a saving, procured by relying on internal leadership and competence, using fairly cheap resources for external support, and keeping the system as lean as possible to let it be used even in ill equipped and poorly connected field offices. The cost of implementation of FABS can be considered low when compared to similar undertakings by similar organizations.
WHO	A preliminary analysis and risk analysis was conducted assuming that an ERP would be implemented. This will need to be revised to reflect both the interim and long-term solution, once these have been agreed upon.
ITU	The ITU High Level Committee reform process mandated by member States required implementation of the new FMS for 1995; although no formal cost/benefit analysis was performed, important benefits were anticipated. These include: retaining centralized control and expenditure monitoring, while enabling decentralized decision-making; rapid, up-to-date and decentralized online access to information, as well as enhanced control and flexible reporting. These benefits have been achieved, resulting in better cost and budget control for excellent management of commitments and expenditure.
WMO	The driving cost/benefit analysis was the need to address the Y2K issues with the legacy system. No formal cost/benefit analysis was conducted due to the timing of the project.
IMO	The "business case" for the implementation of an ERP solution will be supported by a cost/benefit analysis and a

	discounted cash flow (DCF).
WIPO	Extensive preparatory work was carried out over two years before the decision was taken to include AIMS in the WIPO programme and budget. Current business processes were mapped and future processes developed showing the savings in time and costs that could be derived from significant re-engineering. Justification for the project was derived from these estimates as well as from the WIPO external auditors who carried out a finance systems audit concluding that the AIMS project was both timely and necessary. The decision to "start small" with the implementation of the finance and budget modules also demonstrated a pragmatic approach that mitigated the risks of embarking on what may ultimately become a much bigger project.
IAEA	During 1997-1998, cost/benefit and risk analysis was conducted with the help of Touche Ross. The benefits identified were savings and efficiencies, obtained by a re-engineering business process. Work on streamlining the processes has now started and it is expected that efficiencies will result.
OECD	Projects were launched according to management priorities. As part of the establishment of respective project frameworks, costs and benefits were analysed. In some cases, it was possible to leverage synergies between immediate management needs and other imperatives such as the Y2K cut-over.

Table 4:

Operational process

United Nations	Internal operating processes have been streamlined thanks to the integrated nature of IMIS. Examples include the requisitioning cycle with funds-sufficiency checking and account validation at date entry, travel, post-management linking budget and human-resource data, payroll with its integrated use of human resource, entitlements and finance data. The new working processes were fully documented prior to the implementation of IMIS. Refinements or adjustments to certain working processes were made post-implementation. The operational processes and workflows were agreed to and signed off by senior managers within the user community. User departments and management were fully and constantly involved in discussions and decisions concerning the chain of command in the new processes.
UNDCP	Since ProFi is not an activity-based system, it can only indirectly contribute to results-based budgeting. It is designed, however, to be a major innovation to delegate responsibility for project financial management to programme managers without central direct control, thereby necessitating increased accountability while facilitating central monitoring. Delegation of responsibility for human resources is outside the system. The financial system can facilitate delegation, but it cannot impose it; that requires the commitment of senior management, in particular the Executive Director. UNDCP will start implementation of phase II of ProFi beginning hopefully in September 2001. The project will last approximately nine months, with a target completion date of 1 July 2002. Phase II will address the concerns of programme managers for a tool to integrate financial monitoring with substantive monitoring of projects, thus providing a better foundation for results-based budgeting and management. UNDCP is currently consulting with sister agencies on results-based management and what approach to take, and a proposal will be sent to the governing body in October 2001. UNDCP fully expects that ProFi phase II (the project management system) will form an integral part of that proposal. Indeed, the implementation of the project management system has been encouraged by the members of the Commission on Narcotics.
UNDP	Business process re-engineering will be an integral part of the PeopleSoft ERP implementation. UNDP will re-engineer its operational work processes in line with the international best practices embedded in the ERP software. As such, UNDP will seek minimum customization of the software, saving implementation costs and facilitating future upgrades.
UNHCR	UNHCR, in the context of the ERP project, reviewed many existing processes and defined many future processes. These "to be" processes are a combination of best practices inherent in the new PeopleSoft ERP system and revision of existing in-house processes.
UNICEF	The new working processes were documented in detail in the "business process and procedure database" prior to the implementation of the MI system project. Users have access to these through Intranet and in addition quick reference guides were developed for frequently used procedures. The operational processes and workflows were agreed to through the weekly management and owner's meeting. Issues raised and reviewed were documented in a Lotus Notes database that was shared by team members in the three main locations involved: New York/Secaucus, Copenhagen, and Geneva/Huningue. User departments were fully involved through weekly management meetings (at least twice a week) plus owners' meetings.
UNRWA	A change management consulting firm is assisting in this aspect. No prior assessment of electronic competencies was carried out prior to project launching. In the meantime, a training-needs analysis has been carried out to identify the gaps and a large number of training programmes are running to meet the competency gaps.
WFP	In preparation for the creation of the FMIP systems, many of the divisions took the opportunity to re-engineer their processes. This allowed for the new FMIP systems to be implemented with the already re-engineered processes. As with any large organization there is always room for additional process re-engineering. The FMIP has been well documented from the start. Starting with the BRP (Business Re-engineering Programme) and feasibility study phase, the business processes were documented and published. At the design and analysis phases of the project, the business processes were again documented including the "as is" and the "to be" processes. These are detailed down to the work step level and are included in the design blueprint documents.
FAO	A high-level BRP study was conducted at the very beginning of the Oracle Project both for personnel and financial services with the assistance of one of the big-five consultancy companies. The functional design of the new MI system project was driven by the user divisions. The new working processes were documented at high level by the initial BRP

	review mentioned above, and fully documented in the procedural guidance produced and supported by the Oracle Tutor product. These procedures were made available across the FAO Intranet to all headquarters and regional office users. While there was a formal acceptance of a high-level description of new ways of working described in the functional designs prepared by the user division, there was no formal sign-off of the new detailed workflows. These workflows were only documented in the process of preparing operational procedures in support of the training programme and the implementation of the system.
UNESCO	During the design phase of FABS, all concerned processes ("as is" and "to be" phases) have been documented by means of workflow diagrams specifying workflow and interactions between concerned actors. For the implementation of FABS, all operational processes ("to be") had been reviewed by a Validation Committee and later submitted to a Technical Support Committee (TSC) that validated the final process. The composition of TSC, which "signed off" the validated processes included the directors of the Bureau of Budget, Bureau of Strategic Planning, Internal Oversight Service, Bureau of Field Coordination, Division of the Comptroller, Division of Information Services and Telecommunications, Bureau of Human Resources Management and Executive Office of Education. As far as SISTER is concerned, there was no formal sign-off process, and this probably slowed the process. Consultations were broad enough to allow every stakeholder to voice its concerns, for the implementation of both SISTER and FABS.
ICAO	It is anticipated that those operational process issues will be addressed during the development and implementation of MIS at ICAO.
ITU	The FMS project was part of a reform process in which budget and expenditure decisions were decentralized. FMS has enabled the improved management of commitments and expenditure mentioned above; this includes very rapid turnover of commitment and expenditure documents. Timely execution of these transactions improves administrative procedures throughout the organization. The up-to-date, transparent reporting contributes to better management. FMS was implemented on the basis of revised financial rules, implemented in connection with the decentralized budgeting process and cost accounting that were part of the ITU High Level Committee (HLC) – mandated ITU reform process in the early 1990s. FMS is intended to support financial management with decentralized budgeting and cost recovery for internal services while conserving centralized control, with timely and transparent reporting.
WMO	The initial process was to replicate the legacy system as best possible. Currently, it is going through business process re-engineering to optimize the use of the financial system for improved budget control, accounts processing and reporting the information to those who need it.
WIPO	During the package selection phase of the project, significant work was undertaken to ensure that the selected package would meet a revised set of business processes for the finance and budget areas. Commitment to the project by the affected business areas is demonstrated by the fact that the Director of Finance is the project sponsor and all business areas are represented at a senior level on the project board. The decision to start the project was made at the highest levels in WIPO and in the full knowledge that emphasis was to be placed on the change management, rather than the automation, aspects of the project.
UNIDO	The new Financial Performance Control System (FPCS) allows data to be captured at the source and workflow-oriented job processing.
IAEA	IAEA is in the process of transition to a fully results-based framework. More thought needs to be given to how the future MI system project might help improve management. Over the last several years, the agency has been reviewing its decision-making processes, aiming to delegate decision-making and responsibility, including accountability, to the lowest practical level of management, i.e. where the activities and transactions occur. Work on streamlining the processes has now started and it is expected that efficiencies will result. The study conducted by Touche Ross included models for the new processes.
OECD	The implementation of administrative and financial systems has allowed in particular the re-engineering of the budget management process, improvement in budget control and reporting, adoption of simplified management procedures and more decentralized facilities. It also allowed the introduction of electronic workflows, which greatly increase the speed and coherence of administrative transactions such as official travel and document reproduction.

Table 5:

Costs of management information systems

United Nations	The total cost of the IMIS project amounts to US$ 78.6 million, which is broken down as follows (Thirteenth progress report of the Secretary-General on IMIS, A/56/602 of 5 November 2001): staff costs, US$ 20,140,000; travel, US$ 1,794,800; training, US$ 4,651,100; contractual services, US$ 46,751,900; communications, US$ 283,900; supplies and miscellaneous expenses, US$ 307,000; hardware, US$ 2,829,200; and software, US$ 1,796,700. Currently, the financial (IMIS Release 3) and payroll modules (Release 4) of IMIS are supported in three major ways in the Office of Programme Planning, Budget and Accounts (OPPBA); funded through both regular and extrabudgetary resources. The OPPBA/IMIS help desk provides active help desk support, and IMIS testing, as necessary, addressing technical problems or enhancements which are identified, and developed and put in place by the IMIS team relating to Release 3.

	This team has had the lead responsibility, supplemented by staff members from both the Accounts Division and Budget Division during implementation at the seven offices away from Headquarters (OAHs) over the past two years. The group provides ad hoc training, and has done much of the in-depth research and development of large IMIS developmental efforts (consolidated database, EURO introduction, archiving, etc). It also works with staff to review new workflow in the IMIS environment, and to identify further enhancements that need to be developed. Until definitive long-term arrangements are put in place, the Systems Support Section in the Accounts Division, in addition to responsibilities for ongoing support of the financial mainframe applications, has assumed the functions of generating reports for both Releases 3 and 4. Together with the Payroll Section, it is also assuming the help desk and monitoring responsibility for Release 4, and will take the lead in OAH implementation during 2002. They maintain the system documentation, and oversee the development and maintenance of reports using the IRFA reporting system. This group has also developed several adjunct applications that interface with IMIS using compatible technology to further streamline and facilitate the system. They provide membership to the IMIS SIG committee for the Accounts Division, which works to review and prioritize outstanding IMIS development work. The biggest indirect cost of IMIS implementation has been the cost of management involvement, and the cost of testing, both of which have considerably exceeded early estimates. As the basic design of the system differed substantially from the preceding systems, significant amounts of time had to be devoted to rethinking and re-engineering existing workflow to document and design the IMIS application. This put tremendous strain on existing management, as it required effort in both developmental and ongoing day-to-day servicing of the organization. Likewise, testing of the system was much more involved and lengthy than originally predicted. Actual costs of commercial software packages directly attributable to the IMIS environment have been minimal. The United Nations Secretariat, however, purchased a well-known audit software package ("ACL") in anticipation of using it for analysis and auditing the large IMIS databases. Cost of the package is US$ 2,000. However, it was possible to assume the licence from another United Nations group that was no longer using the package. Other software being used with IMIS has been provided centrally by the Information Technology Services Division (ITSD) (Paradox, Acrobat, and standard MS packages). Infrastructure costs are largely borne centrally by ITSD. The two groups mentioned above, the OPPBA finance help desk (4 Professional posts, 2 General Service posts – one each at the Principal and Other level, and the Accounts Division System Support Section (2 Professionals, and 5 consultants) are the major costs in this respect. It is anticipated that with the full implementation of both Releases 3 and 4, most of the consultancy requirements will no longer be required. Licences for IMIS are borne fully by ITSD. Maintenance costs for the ACL package referred to above are US$ 600 per year for each of two packages.
UNDCP	The costs of the MI system project are estimated at US$ 1,824,995, to be funded from extrabudgetary resources. Maintenance is carried out by one L-4 staff funded through the MIS project and 2 General Service category UNDCP staff. Indirect costs are estimated as follows: travel for training of staff, US$ 60,000; existing equipment used for staff training, US$ 31,400; the costs of commercial software packages are estimated at US$ 54,000 per year. No extra costs are required for infrastructure. For ongoing maintenance for help-desk and functional support, payment of US$ 1,100 per workstation is made to the United Nations Office at Vienna (UNOV) for all staff, no matter whether using the MI system (ProFi or not). This fee includes all services.
UNDP	The consolidated biennial budget 2002-2003 for ICT and for work implementation tools activities is US$ 47 million, of which approximately half will be allocated to the ERP implementation project, with the balance being used to maintain and support existing systems that serve UNDP and United Nations organizations served by the Resident Coordinator system managed by UNDP.
UNHCR	The project cost of the new ERP initiative will range from US$ 30-40 million over a five-year period. This cost includes software licences, enhancements, hardware, consulting assistance for implementation, internal staff costs and other costs directly attributable to the project.
UNRWA	The costs of the MI system project (Finance and Human Resources Management Project) total US$ 4,321,179, which is broken down as follows: Software and system costs including costs of consultants: US$ 1,819,606. Recurrent and non-recurrent costs, including costs of office stationery, printed forms, miscellaneous supplies, rental of premises, maintenance of premises, electricity and water, computer hardware, and other auxiliary and contractual charges: US$ 331,584. Indirect costs including staff costs, training and travel: US$ 1,426,485. Costs of infrastructure and communication: US$ 378,450. Costs of help-desk coordinator: US$ 48,574. Costs of maintenance for upgrades, expansions and licences: US$ 316,480.
WFP	FMIP has a very broad scope which included the establishment of a global connectivity mechanism, global systems to facilitate operations while performing increased controls, business process improvements, software purchases if required, a new hardware infrastructure, etc. The original budget allocated to FMIP was US$ 29 million over 4 years. As the project implementation time increased and the scope of the project was expanded, the budget increased to US$ 37 million. As WFP has recently gone live the figures on the recurrent and non-recurrent costs are not yet available. The costs included in the US$ 37 million mentioned in Part III, question 1, above include all costs included in the list in this question. Costs associated with staff or consultants who may have been used on an irregular basis as knowledge resources, have not been tracked. These should not be considered costs but as change management investments. The costs of SAP, Lotus Notes, and Oracle have been included in the overall budget of FMIP. The costs of infrastructure updates have been included in the overall budget of FMIP.

	As WFP has recently gone live the maintenance costs for help-desk and functional support are not yet known. The yearly licensing fees for SAP/Oracle/Lotus Notes are approximately US$ 880,000.
ILO	The total resources allocated to the implementation of the MI system project amount to US$ 25 million, US$ 20 million apportioned for finance and related areas and US$ 5 million for HRD. This is the initial level of resources funded, under an exceptional decision by the International Labour Conference from cash surplus funds. Since the MI system project has just started, the data related to the level of recurrent and non-recurrent costs, indirect costs are not available. The costs of commercial software packages are not available. The costs of additional infrastructure are not available. The costs of ongoing maintenance costs for help-desk and functional support, upgrades, expansions and licences are not available.
FAO	Total investment to the end of 2000 for the implementation of Phase I (financial stream), excluding internal staff costs, has been in the range of US$ 22 million. Initial funding was for US$ 5.5 million plus US$ 4 million for initial customization and implementation costs. Additional consolidation costs for Phase I were estimated in June 2000 in the order of US$ 6.5 million. Phase II has been initially estimated at US$ 12 million, excluding costs to be incurred by owner divisions for functional expertise and support of the implementation effort. The level of technical resources allocated to recurrent and non-recurrent system maintenance (now covering consolidation of Phase I, which also includes the migration to a new release of Oracle Financials) is in the order of 15 internal staff plus an average of 20-25 local contractors at any one time. The level of functional resources allocated to the same functions in the Finance Division is limited, perhaps 10 staff and some 5-6 consultants. Additional functional experts are in the process of being recruited. It is difficult to provide information on the breakdown of the costs mentioned. In general terms, FAO can say that between 15 and 20 per cent of the total investment was absorbed within available resources. The original investment for the package acquisition back in 1995 was for US$ 1.8 million. An additional US$ 1.2 million is estimated having been spent in acquisition of tools and new licences. Maintenance fees have been negotiated very forcefully with Oracle, but have never been below an average of US$ 250,000 per year and are expected to grow with the implementation of Phase II. The additional costs for infrastructure have been for US$ 1.1 million back in 1995, plus an average of US$ 500,000 per year ever since. Communication costs have also been high, up to an estimated total of some US$ 1 million over the past six years, including upgrading of RO bandwidth and installation of a VSAT station in Ghana.
UNESCO	Improvement in the IT infrastructure has been achieved progressively since the establishment of the Information Resources Development Plan, from regular budget resources. There has been no rubber-stamped strategy to record all the costs of development of SISTER, the total cost up to date being estimated at around US$ 1.5 million. For the implementation of FABS and the Human Resources and Payroll System, a special account was created in July 2000 to receive voluntary contributions as well as transfers from the regular budget, so all expenses are clearly associated with the project. The total resources allocated to the special account up to end of July 2002 are US$ 14.5 million. Maintenance and complementary developments are for the time being encompassed in the ongoing contracts with the consulting firms. A competence centre is being built up, from staff assignment and internal resources, to provide support services in the long run. It is not yet possible to figure out exactly how much this will add up to, but business practices suggest that allocations below 10 per cent of the initial cost would not provide a sustainable future for the IS. Such indirect costs are so commonly underestimated, that they are even not recorded. For example, time spent in meetings and training sessions amounts to a fairly high cost (and this was rated and included in the overall SISTER cost mentioned before). Indications are also available of all purchasing costs, such as computers, servers, auxiliary software, but use of office space, telephones, paper, etc. should also be accounted for, which, in the absence of clear baselines, is not an easy task. Quite a few missions were made to sister agencies before choosing SAP as the off-the-shelf tool, and to complement information about its customization once chosen. The only travel costs on behalf of SISTER were for the 10 training missions to field offices, for regional and cluster training. SISTER is not a commercial package, and its mere production cost (not including training, management, etc, but the very production of the software itself, was US$ 0.6 million. With regard to the FABS system, using SAP software, package costs amount to some US$ 1 million corresponding to licence costs for headquarter users. A similar amount may be required for users in the field units and institutes but the final cost is subject to negotiation with SAP. The additional technical infrastructure costs for the years 2000/2001, included in FABS implementation costs, were US$ 848,000 and an estimated US$ 900,000 to complete field office and institute connectivity (for the biennium 2002/2003). The functional support and help-desk costs are currently included within the global project costs and have not been analysed separately. In the early implementation of FABS, from the period January to July 2002, some development work still continued and since then work has started on preparing a study on field office implementation. The costs of the internal teams and consultants have not been split between maintenance and development. However, it is estimated that the maintenance of the FABS system could cost some US$ 4.5 million in the current biennium. An annual fee of 17 per cent of original license costs is payable to SAP on a yearly basis. For this maintenance fee, upgrades are provided on a regularly basis by SAP at no additional cost and these upgrades are applied as received to the current system by the FABS project team. However, with regard to version changes, this may entail changes in functionalities and thus would need to be studied and tested before application. In this latter case, costs are difficult to estimate at this stage without knowing the extent of changes in functionalities. However it is unlikely that UNESCO will move to a new version before 2004.
ICAO	The total financial resources planned for the initial phase of the basic financial system were estimated at US$ 1.5 to 2 million. ICAO is in the process of replacing its financial management and related systems. Initial funding for the

	development of new systems has recently been approved. Action is currently under way to determine the requirements before identifying and selecting specific systems solutions. ICAO is in the process of replacing its financial management and related systems. Initial funding for the development of new systems has recently been approved. Action is currently under way to determine the requirements before identifying and selecting specific systems solutions.
WHO	Costs incurred to date have been funded from the operational budget of the areas concerned which include both regular budget and other sources. The information on costs of recurrent and non-recurrent support services, indirect costs, costs of commercial software packages and other tools, additional costs of infrastructure (communication, expansion, network, computers and capacity), ongoing maintenance costs for help-desk and functional support and for upgrades, expansions and licences are not available.
ITU	The level of total resources allocated to the implementation of the FMS project between 1998 and 2000 amounted to SWF 9,191,000. These costs relate to the utilization of SAP R/3 (to which ITU migrated from R/2) as the technical platform for this project. This migration was necessary because the functional and technical features of R/3 were necessary to meet the various FMS requirements. The total implementation costs were funded from the Union's regular budget. The resources allocated to implementation (including maintenance) of the FMS system include the following costs: Recurrent costs: SWF 4,964,000 staff costs; Non-recurrent costs: SWF 4,227,000 including SWF 3,655,000 for external consultants and SWF 301,000 for training. The indirect costs relating to the design and implementation of the FMS system were not measured in detail. The technical basis of the FMS system is SAP R/3. The one-time cost for the acquisition of the R/3 modules used for the implementation of the FMS system, including the licences for the SQL database system, were as follows: SAP R/3 licences: SWF 424,450; Less special rebate as R/2 user: SWF 247,820 (granted for the upgrade from R/2 to R/3); Net R/3 software costs: SWF 176,630. The additional infrastructure costs (networks, computers, upgrading of existing systems) cannot be charged solely to the FMS system as other applications benefit from the existing common infrastructure. SWF 214,000 for purchase of computer equipment is included in the non-recurring costs reported above. Costs for ongoing help-desk and user support are already included in the recurring costs. The yearly costs for the ongoing R/3 maintenance and licences are currently SWF 117,496. Outsourced SAP R/3 (with SQL Server) maintenance and technical support services from Compaq are SWF 129,500 per year.
WMO	All costs are related to contractual, hardware, maintenance and support contracts. A total initial implementation cost was SWF 1.3 million. This includes the process work for the first financial closure. The projected costs for stage one of the re-engineering, department reporting access roll-out and procurement are SWF 400,000.
WIPO	The costs of AIMS (Administrative Integrated Management System) are estimated at SWF 9.9 million, which include the following costs: Staff missions: SWF 450,000; Consultants: SWF 5,430,000; Other contractual services: SWF 800,000; Premises and maintenance: SWF 200,000; Communication and other operating expenses: SWF 200,000; Furniture and equipment: SWF 970,000; Supplies and materials: SWF 100,000. It is expected that further budgets will be requested in the programme and budget for future bienniums to cover the implementation of specific additional modules, e.g. in the areas of travel, procurement and human resources management.
UNIDO	The cost of the MI system project totals US$ 1,427,701. The cost of recurrent and non-recurrent costs totals US$ 60,000 for Agresso only. Indirect costs are not recorded. Costs of the commercial software package total US$ 13,123. Cost of additional infrastructure totals US$ 26,000. Costs of spare parts required for maintenance total US$ 15,000. Maintenance is provided in-house. Costs of ongoing maintenance for upgrades, expansions, and licences total US$ 20,000.
IAEA	The costs of the MI system project are estimated at US$ 2 million. The initial level of resources was approximately US$ 1 million, funded from the regular budget. The level of recurrent resources for support services is approximately US$ 0.5 million, from the regular budget. Indirect costs are not available since they are not tracked separately. The costs of commercial software packages amount to approximately US$ 500,000. Additional infrastructure costs are approximately US$ 150,000. Ongoing maintenance costs for upgrades, expansions and licences are estimated at approximately US$ 100,000 per annum.
OECD	On average and over a period of 12 months, each project team for the development of individual administrative and financial systems was composed of: • 5 internal staff (functional and technical); • 3 full-time equivalent specialized external consultants and programmers. Funding was mostly covered through the regular annual budget allocated for systems development. In selected cases special priority funds were allocated to reduce implementation delays. In most cases in-house staff carry out recurrent and non-recurrent support. Where possible, a primary and a secondary support person are assigned to each application, spending about 20 per cent of their time on this work. Maintenance includes ongoing system/database administration and system evolutions. All support is funded from the annual IT budget.

	All costs were budgeted within the envelopes of the individual projects, except for travel and IT staff training. Mainly licence costs for ERPs were heavily reduced compared to market prices. Average upfront costs amount to € 150-200 thousand per package. Typically upfront infrastructure costs for hardware, system tools and networking (new or major enhancements) amount to around € 70-100 thousand per system. Ongoing end-user support represents on average 15 per cent of the implementation costs of each application. This number is digressive for applications that share software components, hardware, etc. Ongoing costs for maintenance licences for all administrative and financial systems amount to about € 150 thousand per year.

Table 6:

Inter-agency coordination

United Nations	There were working arrangements with some agencies. During the initial stages of the project existing systems in use in other agencies were considered, including those of FAO, OECD, WHO and WIPO. UNDP, UNICEF, UNFPA and UNHCR were associated with all the design phases of the system design and development. At the end of 1990-beginning of 1991, a special study was conducted with these entities to identify the differences there might be in the way business processes were performed in each organization. This study was endorsed by all the parties concerned. All design documents for modifications and enhancements to the system's functionality were shared with the user agencies during the project's life cycle.
UNDCP	The United Nations Office for Drug Control and Crime Prevention (ODCCP) does not have an administration of its own, but rather uses others for issuance of staff contracts, procurement, etc. (UNOV, UNDP, UNOPS, etc.). The UNDCP ProFi system, therefore, focused on the needs at the general ledger and budget planning levels (UNDCP uses the PeopleSoft general ledger and budgets modules for this reason). UNDCP is not required to undertake details on transactions on procurement and the like. At headquarters, the system extracts information from the United Nation' IMIS system in real time. This created some complications, none serious, however. All of the problems have been overcome. The interface with UNDP, the other main partner of UNDCP, is more problematic, mainly because UNDP has no real "system" of its own, and UNDCP cannot link up with it. UNDCP only receives data after it has been processed by UNDP, New York after considerable delays.
UNDP	UNDP is using IMIS to support headquarters finance, human resources and other administration activities. UNDP also operates various other headquarter-based systems that complement and interface with IMIS, as well as a country office suite of applications through which financial information is provided to other United Nations organizations.
UNHCR	UNHCR participates in all inter-agency gatherings on ICT matters. It is currently actively seeking a joint development partnership with several United Nations agencies.
UNICEF	The development of IMIS for the United Nations was approved by the General Assembly in December 1988, with the stated purpose of having an integrated system for processing and reporting on administrative actions at all major duty stations. Following a thorough review and evaluation of the United Nations' IMIS, UNICEF determined that IMIS did not provide the functionality it required for finance, programme and contributions. Additionally, the account structure did not suppor either the UNICEF Financial Regulations and Rules or the commercial aspects required by UNICEF for fund-raising and management of its Private Sector Division (PSD). In 1995, at the request of the Secretary-General, and due to a lack of viable alternatives at that time in terms of payroll, UNICEF migrated its headquarters human resources system and began to implement Releases I and II of IMIS, which cover personnel (posts and all actions relating to recruitment, promotion, transfer and separation) and entitlements respectively. UNICEF installed Release I in May 1998 and also implemented major enhancements to make the system function at a level equivalent to that of the legacy system. UNICEF also developed recruitment and classification modules as those present in IMIS were not adequate. Most of these add-on modules and enhancements have been incorporated into the IMIS base system and are now available to other United Nations organizations. UNICEF went live with Release II, for entitlements, in January 1999. Implementation of Release IV, covering payroll, was planned and budgeted for 1997-1998, but due to delays in the overall development of IMIS at the United Nations, the date had been changed to September 1999 for the United Nations and early 2000 for other agencies. The United Nations took action to ensure that its legacy payroll system was made Y2K compliant. UNICEF is currently reviewing the operational modalities for interfacing IMIS payroll with the Financial and Logistics System (FLS). UNICEF regularly attends meetings of the Technical Subgroup of the Ad Hoc Open-ended Working Group on Informatics of the United Nations. This working group has broad responsibilities for United Nations information management. In the Great Lakes region of Africa and other countries affected by emergencies, UNICEF and the WFP are jointly utilizing the UNICEF SITA network and sharing wireless communications to send via e-mail, as well as sharing skills and resources based on an inter-agency Memorandum of Understanding (MOU). This has reduced costs compared to satellite telephone communications, which often are the only international option in other emergency situations. Most of the other field-based United Nations agencies have established contracts with SITA and are increasingly utilizing it for dial-up e-mail (used already in more then 100 UNICEF field offices) or in future, for Internet and Intranet access. While there have been some common IT initiatives with different United Nations agencies, in general the IT environment of the United Nations system in the field is ad hoc, which impedes the sharing of services. Most other agencies do not have organizational standards. If they do, those standards cannot be economically shared or are not updated, or the agencies do not have IT field staff. In addition, managerial enforcement and IT strategy tend to be haphazard, resulting in a variety of equipment that is incompatible with UNICEF standards. Further, its architecture may

	be based on decisions undertaken by a locally contracted support company, or by referring to old standards which have not been updated. UNICEF regularly attends meetings of the common services task forces on IT and telecommunications as well as IMIS. Common services for IT, both in the field and at headquarters, provide the opportunity to reduce costs and share expertise, if exercised with a clear cost-benefit analysis and specific service level agreements, rooted, if required, in inter-agency MOUs. As various United Nations agencies and field-based funds and programmes are at different stages of maturity in terms of IT and its usage and role, the common service approach is a very challenging one. (*Progress report on the UNICEF strategy and investments in information technology*, UNICEF, 1999.)
UNRWA	The only existing inter-agency MIS working arrangement and mutual dependencies is UNRWA use of the IAEA mainframe IBM system to process its existing payroll system. Nevertheless, the existing payroll system is totally managed by UNRWA staff. The IAEA role is to maintain the IBM hardware and operating environment. No dependency exists on the application side.
WFP	Prior to FMIP, the Programme had two major inter-agency relationships. The first was a strictly technical relationship with ICC. This relationship contributed positively to the implementation of FMIP as it allowed the WFP staff to concentrate on the future technology platform while relying on the ICC professional management to ensure stability of the legacy environment. The second relationship was with FAO. This relationship is based on a business and technical level. WFP and FAO currently share the use of a common HR/Payroll system. This relationship has many constraints to FMIP. Firstly, as WFP had never before run its own HR/Payroll system, the level of business and technical knowledge about HR/Payroll was quite low. WFP was forced to recruit from other agencies to obtain the required level of business knowledge. Secondly, as the WFP employees are mixed in the FAO system with FAO employees the logistics of data migration and project start-up are complicated. Finally, the relationship has caused FAO to perform activities to ensure that the migration of WFP employees from the FAO system does not cause problems to their system.
UNESCO	UNESCO tried to profit from the experience of other agencies that had already implemented an ERP before launching FABS, through exchange of information, although the project was implemented as an independent initiative. In the case of SISTER, which was developed according to UNESCO specific programming patterns, it is acknowledged that UNESCO experience could benefit other organizations.
ICAO	Formal (through inter-agency coordination groups) and informal consultations or contacts with other agencies of the United Nations system have taken place so far, to take best advantage of their experience. Such exchanges were quite helpful and had significant impact in terms of raising awareness to problems, strategic orientation, project management, resource allocation, etc.
ITU	The ILO/ITU Health Insurance Fund does have a shared application which is independent of the MI system project. However, ITU has consulted extensively on ERP issues with other organizations since 1991. An HR requirements document was prepared in 1998 in cooperation with WFP and UNICEF, together with UNHCR and WIPO. These efforts have not yet resulted in any shared ERP implementations.
WMO	There are informal working arrangements with some agencies for the sharing of ideas and experiences.
WIPO	In developing its strategy for the AIMS Project, WIPO secretariat staff had detailed discussions and visits with colleagues in Geneva (in ILO, UNHCR, ITU, WHO and WMO, as well as in the World Trade Organization (WTO) and the International Committee of the Red Cross (ICRC), in Vienna (with the Organization for Security and Cooperation in Europe (OSCE) and UNDCP) and in Rome (with FAO and WFP), in order to benefit both from their experience in developing such systems and the lessons learned.
OECD	OECD is part of a group of international agencies which coordinate their administrative rules and regulations. Though not formally engaged with and dependent on any other organization, the OECD secretariat has fostered collaboration and information exchange where possible (e.g. joint operation of computer hardware in support of the payroll of two organizations.